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Original Articles.

A CASE OF APLASTIC ANÆMIA.*

By J. PORTER PARKINSON, M.D.,

Senior Physician, Queen's Hospital for Children.

A BOY, aged 9 years, was admitted to hospital on March the 24th. Six weeks previously bruising all over the arms, shins, and back was noticed, and, a week later, a rash resembling flea-bites had appeared on the body, and had been coming out at intervals since. For a month he had been bleeding at the mouth, the lips were painful and swollen, and the gums sore. For a fortnight he had had severe headache, and was noticed to be rather pale and breathless. He had had scarlet fever at 18 months, "kidney trouble and dropsy" a year later, measles and whooping-cough when 6 years old, but no other illness. There was one other child, aged 3 years, who was healthy. No family history of hæmophilia. On admission he was very pale and his face rather puffy. There was no rash except a few petechiæ on the feet. The gums were not swollen, but were bleeding slightly. The tonsils were enlarged and a few glands could be felt in the neck. The lungs and heart were normal except for a pulmonary hæmic murmur. The liver and spleen appeared to be of normal size. The urine contained neither albumin nor sugar. The temperature for the first fortnight rose to 99° F. in the evening, but in the last week had risen to 100° F. most

* The case was shown before the Section for the Study of Disease in Children of the Royal Society of Medicine on May the 24th and October the 25th, 1918.

evenings. The blood-count on April the 25th was: Red cells, 1,260,000; leucocytes, 800; Hb., 20 per cent.; colour index, 0·9; polymorphonuclears, 29 per cent.; lymphocytes, 72·5 per cent.; eosinophils, 0·5 per cent. No nucleated red corpuscles; no marrow-cells. The red corpuscles showed marked alteration in size and shape. May the 6th: Red cells, 1,088,000; leucocytes, 1200; Hb., 20 per cent.; colour index, 1; polymorphonuclears, 18 per cent.; lymphocytes, 76 per cent.; hyalines, 5 per cent.; eosinophils, 1 per cent. The red cells showed marked differences in size and slight differences in shape. No nucleated forms. The lymphocytes consisted almost entirely of small cells.

The cause of the profound anæmia was obscure. There was no reason to suspect scurvy, hæmophilia, tuberculosis, or syphilis. The Wassermann reaction in the blood was definitely negative. Lead-poisoning was unlikely. There was no evidence of intestinal parasites. The blood showed marked leukopenia, due almost entirely to diminution in the number of the polymorphonuclears, the lymphocytes being in relative excess, but actually about normal in number.

Ophthalmoscopic examination showed slight optic neuritis and numerous hæmorrhages into both retinæ.

The patient was shown at the Section for the Study of Disease in Children of the Royal Society of Medicine on May the 24th, when Dr. Parkes Weber regarded the case as a typical example of chronic aplastic anæmia, in which condition the red bone-marrow was the only tissue at fault. There was a deficiency of the blood-cells which were formed in the red bone-marrow—viz. the red corpuscles and the polymorphonuclear leucocytes. Practically nothing was known as to the cause of that type of case.

The anæmia subsequently increased and the hæmorrhages in the gums continued. On June the 11th the red cells had gone down to 624,000, the white cells were 1600, the hæmoglobin was 17 per cent., the colour index 1·4, the polymorphonuclears 28 per cent., the lymphocytes 68 per cent., eosinophils 2 per cent. No nucleated reds were seen then or at any time. Transfusion was performed by Mr. Bankart on June the 18th, from a healthy male, aged 26 years. The blood was tested for hæmolysis against that of the patient, and was found to be satisfactory; 300 c.c. of blood mixed with 30 c.c. of citrate solution was injected intravenously. The patient's colour improved greatly during and after that procedure. About a week afterwards the blood-count showed a slight increase of red cells; in other respects it was about the same as before. The increase then was only up to 888,000. A second transfusion was carried out on

June the 28th, the donor being a healthy female, aged 25 years. Her blood also was tested for hæmolysis against that of the patient, and was satisfactory ; 500 c.c. of blood mixed with 50 c.c. of citrate solution were injected, as before. After five minutes the patient became collapsed, very cyanosed, and vomited, and the pulse became feeble and rapid. He recovered sufficiently from this, however, for the tranfusion to be continued. But at the end of the operation there was some epistaxis, and several large pinkish spots appeared on the arms and body. On being returned to the ward he was still very collapsed. Pituitrin was given subcutaneously, and he passed bright blood in the urine and by the rectum ; he vomited blood, and the epistaxis continued. Coagulose was given subcutaneously, and calcium lactate by the mouth. Next day he was still passing blood by the bowel and the urine, and was deeply jaundiced and comatose. On June the 30th the hæmorrhages had ceased, but he was still jaundiced. The following day he seemed rather better. Later his blood was examined and was found to contain only 580,000 red cells. The rest of the blood-count was similar to the others I have given. One nucleated red cell was seen in counting 280 leucocytes.

On July the 10th the jaundice had gone, but the child was weak and drowsy. The heart apex was 1½ in. outside the nipple line, and a systolic murmur and a presystolic murmur were heard over it. The temperature, which had been somewhat raised during the past month, went up to 103·8° F., but on the following day it fell to 100° F. The temperature variation was mostly between 99° and 100° F.

The child grew weaker and weaker and more drowsy, and had incontinence of urine and fæces. The mother refused to have another transfusion done, and on July the 24th insisted on removing him home. He lay unconscious for a fortnight, and then slowly improved. The donor of the second supply of blood developed acute influenza on the day following the transfusion.

At the present time the boy seems to have completely recovered. His colour is good, the heart has returned to its normal size, and the murmurs at the apex have disappeared. The blood-count on June the 22nd showed 3,960,000 red cells per c.mm. of blood, whites, 5800, hæmoglobin 65 per cent., colour index 0·8. Of the white cells, 65 per cent. were polymorphonuclears, 32 per cent. lymphocytes, 2 per cent. eosinophils, and 1 per cent. hyaline. There was no alteration in the shape of the red cells, there were no nucleated forms and no marrow cells. There were many hæmorrhages

to be seen in both ocular fundi, and there was some optic neuritis. Those hæmorrhages have now disappeared, and a little fibrous tissue remains along the vessels due to the old neuritis. So we may say the boy has practically recovered from this grave condition, from which recovery is almost unknown.

I think it is the only case of the kind which has been shown before the Society. It is a very rare type of anæmia, and it is a still rarer event to have a case recovering from it. No immediate effect, anyhow, seemed to follow the treatment. The first treatment in the case which was tried was to apply X rays to the bones, with the idea of stimulating the red marrow to perform its function. As no immediate result ensued, it had been given up when transfusion was determined on.

POLYNEURITIS FOLLOWING TREATMENT BY ARSENOBENZOL.*

By G. Variot,

Physician to the Foundling Hospital, Paris; and

M. Bouquier,

Formerly House-Physician to the Paris Hospitals.

The patient whom we are bringing before the Society appears to be suffering from toxic polyneuritis, due to the prolonged use of arsenobenzol.

The child, J—, aged 13 years, was admitted to Dr. Variot's service at the Foundling Hospital on June the 12th, 1918, for motor disturbances affecting the lower limbs.

The symptoms started early in May with pain in the left leg and formication in the foot and leg which interfered with the child's sleep. From the first the gait became hesitating and the child had difficulty in raising the tip of the left foot. A fortnight later pain and formication occurred in the right leg.

When the child was brought to us, about a month after the onset of the symptoms, he could hardly stand up alone and had to be supported under the arms. He had a steppage gait, and there was a slight tremor of the upper limbs, especially of the fingers, when the hand was extended.

Up to 1916 there was nothing of note in his hereditary or personal history.

* A paper read before the Société médicale des hôpitaux de Paris on July the 19th, 1918.

According to information given us by Dr. de Spéville, of the Rothschild Foundation, the child was brought to that hospital on November the 13th, 1916, for glaucoma of the right eye following a violent contusion of the eyeball. Tension increased in spite of the use of myotics, and Elliott's iridectomy operation was performed on July the 20th, 1917. No improvement ensued, and as some signs of sympathetic ophthalmia had appeared in the left eye the right eye was enucleated on September the 18th, 1917. The patient was subjected to treatment by arsenobenzol for the sympathetic ophthalmia in the left eye, and three courses of injections were given with an interval of three weeks between each course. Each course consisted of seven to eight injections, an injection being given every week. The first dose of each course was 15 cgm., and each subsequent injection was progressively increased, the last being 45 cgm. The last course began on April the 8th, 1918, and ended on May the 16th. Meanwhile a tumour had developed in the right orbit, and progressively increased in size, necessitating complete evisceration of the orbit on the 26th of last April. The tumour, which was friable and resembled brain matter in appearance and consistence, had to be removed piecemeal. Unfortunately the microscopical examination of the tumour has not yet been made, as the laboratory of the Rothschild Foundation has not been working since the beginning of the war.

Examination of the Child.

Attitude.—In the vertical position the child cannot stand up without support, the thigh muscles alone appearing to be in contraction in this position.

Gait.—When the child walks he has a pronounced steppage gait, and the point of the foot drops.

Spontaneous movements.—The patient has no difficulty in extending or flexing the thigh on the pelvis. He can easily extend the leg on the thigh and resist an attempt at flexion. He can easily flex the leg on the thigh, but offers less resistance to an attempt at extension. The quadriceps and posterior muscles of the thigh contract vigorously in the course of the successive movements. Abduction and adduction of the thigh are performed without difficulty.

Left side.—Flexion of the foot on the leg is well carried out, and opposition to flexion is fairly vigorous. The tibialis anticus and extensor longus hallucis are the only muscles which contract. The action of the extensor longus digitorum is hardly perceptible. Extension of the foot on the leg does not take place normally, and

the gastrocnemii do not contract. Abduction of the foot cannot be carried out, and the peronei do not contract.

Right side.—The motor symptoms are much more marked, spontaneous flexion, extension and abduction being impossible.

Trophic changes.—The muscular atrophy chiefly affects the muscles of the legs in the middle part of the calf, the circumference being 24·5 cm. on both sides. The circumference of the thigh is 37 cm. on the left and 35 cm. on the right at 20 cm. from the anterior superior iliac spine, and 28 cm. on the left and 27 cm. on the right at 34 cm. from the anterior superior iliac spine.

Sensibility.—No change in tactile or thermal sensibility, nor in the sensibility to pain or in the sense of position.

Reflexes.—Loss of knee- and ankle-jerks.

Electro-diagnosis.—The electrical examination was carried out by Dr. Mallet, who is attached to the radiological laboratory of Val-de-Grâce.

Electrical examination of the different nerves and groups of muscles of the lower limbs furnished the following information: There is no R.D. in the territory of the anterior crural nerve. There is slight diminution of excitability by both forms of current (faradic and galvanic), especially on the right. The sciatic nerve, where it leaves the pelvis, shows slight diminution of excitability, especially on the right. The posterior muscles of the thigh react less to both forms of current on the right, but there is no R.D. The external popliteal nerve is excitable on both sides by the faradic as well as by the galvanic current, but much less on the right. The tibialis anticus, which is excitable by both forms of current, shows partial R.D. on the right.

The extensor longus digitorum, extensor longus hallucis and peronei show complete R.D. on the left.

The posterior tibial nerve is not excitable either by the faradic or galvanic current. The muscles which it supplies present R.D. on the right, and especially on the left; R.D. in the gastrocnemii is complete on both sides.

The muscular territories of the small sciatic and obturator nerves do not show any marked change in their electrical reactions.

The study of the various nerves and muscular groups of the upper limb does not show any remarkable change in the electrical reactions, but the tremor presented by the patient is most pronounced in the fingers, and is accompanied by formication. The tremor is composed of very rapid oscillations, and is predominant on the right. The child, who used to be well developed mentally, appears at present to

show a change in his character, and to be excessively emotional, thereby rendering the electrical examination somewhat difficult. For the last week he has had occasional incontinence of urine and even of fæces during the day and night, but it is difficult to speak with certainty on the importance of this occurrence, as the child may quite well have exaggerated a real disturbance of micturition and defæcation in his anxiety to leave the hospital. There are no other visceral lesions.

Albumin is present in the urine, but in too small quantities to be measured.

In the presence of such symptoms as a painful stage preceding a paralytic stage, in which the muscles of the extremities are chiefly affected, loss of reflexes, and a positive R.D., we think that the clinical picture corresponds to a toxic polyneuritis following the methodical and prolonged use of intravenous injections of arseno-benzol. We could not find in the child's antecedents any history of the other intoxications or infections which might be responsible for the production of the polyneuritis.

No other hypothesis in our opinion appeared to account so satisfactorily for all the nervous symptoms presented by the child. It is certain that the symptoms appeared in the course of the last series of injections, and the motor disturbances presented by the child are certainly those which are found in intoxication by arsenical preparations.

Postscript.—We have been informed that since he was shown to the Society the child has died at home. A necropsy could not be performed.

NOTE ON RECURRENT FUNCTIONAL MICROPSIA.

By John Thomson, M.D., F.R.C.P.Edin.,

Consulting Physician to the Royal Edinburgh Hospital for Sick Children.

Recurrent functional micropsia is a trivial disturbance of vision which is not very rare in older children. Its presence is usually only discovered by questioning, as it does not cause any great distress. Sometimes, however, if it recurs frequently and lasts long at a time, the annoyance it gives rise to is considerable; and the medical man may be consulted either on this account or because it has suggested anxiety as to the condition of the child's eyes.

More or less suddenly the child finds that the furniture and other objects in the room appear much smaller than usual—as if they were

three or four times as far away as they really are—although their details are as clear, or clearer, than before. After a few minutes this passes off, and it sometimes seems to go sooner if an attempt is made to focus the sight on a near object, such as the hand. While the micropsia lasts it interferes with reading.

There is no obvious cause for the onset of the symptom. Sometimes it comes on when the child wakens in the morning, sometimes in the evening when he is tired and sleepy, but it may begin at any time in the day; and it is not only when much eye-work is being done that it appears. I have known it to occur with a high degree of myopia, also with quite normal vision; with chronic dyspepsia and with apparently perfect digestion. It is not associated with headache or giddiness.

The micropsia varies greatly in degree and in the frequency of its recurrence. It often begins about the tenth year, and ceases altogether between twenty and twenty-five, if not sooner; and it may cease temporarily for months or years during childhood or adolescence, and then recur without any obvious cause. The explanation of its occurrence is obscure, but it seems to depend on a passing relaxation of accommodation. It is apparently of no importance with regard either to the child's general health or to his vision, but possibly it may have some relation to a strained condition of the nervous system.

AUTO-SERUM TREATMENT OF CHOREA.*

By Alan Brown, M.B.Toronto, George E. Smith, B.A., M.B. Toronto, and John Gordon Phillips, M.D., C.M.McGill.

Recent researches on the bacteriology of chorea have resulted in the repeated finding of a micro-organism either in the blood or in the tissues of the central nervous system. On the other hand, a great many skilled investigators have been unable to obtain positive findings. The organism most frequently found is a coccus belonging to the general streptococcus group, and very similar to the coccus originally described by Poynton and Paine. Within the past three years many positive streptococcus cultures have been obtained in cases of chorea from the teeth and tonsils, while the blood cultures have been usually negative. These septic foci have in many instances been undoubtedly the source of the infection,

* From the Medical Clinic and Research Laboratory, Hospital for Sick Children, Toronto.

but unfortunately the eradication of these foci does not, in many instances, effect a cure of the chorea.

There are a large number of observers who believe that Sydenham's chorea is essentially a manifestation of rheumatic fever, and that it represents an organic disease of the brain which attacks all parts of the cortex equally and impartially. There is still some difference of opinion among those who hold the view that Sydenham's chorea is essentially a manifestation of rheumatic fever infection as to whether the disturbance in the central nervous system is caused by the direct presence of bacteria, or by the presence of bacterial toxins absorbed from some other part of the body.

There are many who believe that chorea is always a manifestation of infection, that rheumatic fever is the commonest infection which produces the manifestations, but that other infections may at times produce the disease. This view would explain the cases which occasionally have been observed to follow other infections, such as scarlet fever. It is interesting to note that the other diseases with which chorea has been associated are conditions in which streptococci are frequently found. Rosenow's observations on the transmutation of bacteria of the streptococcus pneumococcus group, and on the ability of this group of organisms to change their selective affinities from time to time, are suggestive in connection with the occurrence of chorea, not only as a manifestation of rheumatic fever, but of other streptococcus infections.

On the other hand, other observers, while admitting the association of chorea and rheumatism, believe that chorea represents a functional disturbance due to a variety of causes, and amongst these causes infection is one, and of the infections rheumatism the most common; in addition to this, however, they feel that the various factors of the hygiene and environment which produce functional disturbance in general may be responsible for some cases of chorea without the medium of infection. This view might possibly explain the instances in which chorea has apparently developed after a fright or mental shock.

The question of the pathological anatomy of chorea is closely connected with that of its bacteriology. The view appears to be gaining ground that chorea does not represent a functional disturbance of the central nervous system, but that it is characterised by organic lesions of the brain, which, while only temporary, are none the less actually present. Loubet concludes that the lesion is a mild encephalitis caused by the toxins absorbed from an infection without the actual presence of organisms in the tissues of the

nervous system. The majority of French observers appear to hold this view. Both American and European observers have noted the appearance at autopsy of congestion, thrombosis and peri-vascular infiltration with small cells, while Poynton and Paine have in addition noted streptococci in the pia mater as well as in the brain itself.

The relation of chorea to syphilis has been suggested and disproved. The changes in the blood and examination of the spinal fluid have also been intensively studied, but nothing of any importance has been found.

In 1912 A. L. Goodman, of New York, was attracted to the subject of chorea therapy when two of his cases developed classical symptoms of miliary tuberculosis and died. At autopsy it was found that the tubercles were restricted mostly to the central nervous system. It occurred to this observer that the inability to bring about a complete cure was due to the fact that all previous methods employed were ineffective, in that they did not reach the seat of the trouble, which exists in the central nervous system. Being thoroughly convinced of the infectious nature of the malady he felt that any measure directed to the central nervous system would be of great benefit.

It is not within the scope of this paper to discuss exhaustively the theoretical aspects of this treatment. There are many gaps in our knowledge, both of the pathology of chorea and of the drainage of the subarachnoid space and the ventricular system, which must be filled before we can expect a very satisfactory explanation.

In view of the fact that chorea is generally recognised as a bacterial disease due to a streptococcus of the *viridans* group, certain antibodies must perforce be in the circulating blood-plasma, which antibodies do not enter the cerebro-spinal fluid on account of the choroid plexus, which does not permit the transmission of these antibodies into the spinal canal. When the serum is injected into the canal a certain chemotaxic action takes place, and the walls of the choroid plexus again become permeable.

Technique.

It is most essential that both tuberculosis and syphilis be excluded, and that all drug therapy be suspended for at least five days previous to the injection. Most serious results have been encountered when this latter point has not been observed. Drugs circulating in the blood-plasma have a much more potent effect when

injected into the canal, and serious results are thus obtained, particularly after the use of salicylates, when very toxic symptoms of salicylic acid poisoning have presented themselves.

In practically every instance the treatment was administered in the Out-Patient Department, the patients returning home within an hour or two following the injection.

The first step consists in withdrawing about 50 c.c. of blood from the median basilic vein. In some instances an anæsthetic is necessary, as the patient is often too nervous to keep still sufficiently long to obtain the amount of blood required. Ethyl chloride is the anæsthetic employed. It is important to have the tourniquet applied just tight enough to impede the arterial flow ; of course one soon empties the arm of the venous blood, and no more can be obtained until the tourniquet is released. A good plan in this connection is to use a blood-pressure band on the arm and have it inflated to about two-thirds the blood-pressure. The blood is received into three sterile test-tubes, the rubber tubing and needle having been previously sterilised and held, so that the opening in the test-tube is protected from contamination by a piece of sterile gauze wrapped about the rubber tubing down to its point of entrance into the test-tube, the gauze from thereon being held about the test-tube. The tubes are stoppered with sterile plugs and set aside for a few minutes to allow the blood to clot. Before putting in the centrifuge a sterile platinum loop is run down inside each tube to separate the clot from the test-tube in order to obtain the greatest amount of serum possible. The test-tubes are then put in the centrifuge for thirty to forty minutes. At the end of that time the serum is drawn up in a sterile pipette, emptied into a sterile test-tube, and put in the incubator to keep at the proper temperature for injection. In our first few cases the serum was inactivated before injection. At present we are omitting this, trusting to our technique to keep the serum sterile. From 50 c.c. of blood we obtain 20 to 25 c.c. of serum. The preparation of the serum takes about one to one and a half hours. The patients come to the Out-Patient Department about 9 a.m. and the serum is ready at 11 a.m.

The patient is prepared as for lumbar puncture. As we always give an anæsthetic, he has no breakfast. The serum is drawn into a 20 c.c. Record syringe, which fits the ordinary lumbar puncture needle. The patient is then anæsthetised with ethyl chloride, the needle inserted, and about 20 to 25 c.c. of spinal fluid withdrawn. The Record syringe is then attached and the serum slowly injected. This is the crucial step in the operation, as it is essential to give as

much serum as possible without causing pressure symptoms. As one slowly injects the serum, when sufficient has been injected one feels definite obstruction to the entrance of the serum. Further injection, after this resistance has been encountered, invariably results in marked pressure symptoms, such as vomiting, severe headache, elevation of the temperature, etc. An anæsthetic is necessary to enable one to detect this sense of resistance. In our series of cases we have used on an average 17 c.c. of serum.

The patients are kept in the hospital for one to two hours to watch for pressure or heart symptoms. They are then sent home to bed for one week, when they return to the hospital. In the interval the public health nurses visit them to see that instructions are carried out. Usually improvement follows in two or three days and has become stationary again by the end of the week, when they return to the hospital and another treatment is given.

Following the injection there may be a mild disturbance, such as slight rise of temperature, a slight stiffness of the neck, or increase in pulse-rate. These rapidly pass off. Nothing solid is given to eat for six to eight hours following the treatment.

Case Reports.

Case 1.—G. C—, male, aged 8 years, admitted to Medical Clinic September the 8th, 1917, complaining of slight twitching of hands and face extending over a period of one year. Examination revealed numerous decayed primary teeth; tonsils were large. On the same date the tonsils were removed and six defective teeth extracted, following which procedure the choreiform movements were decidedly aggravated, and at the time of his first injection, September the 20th, he was scarcely able to walk or hold objects in his hands. First injection, September the 20th: 20 c.c. serum intraspinously. Second injection, October the 4th: 15 c.c. serum given; no improvement. Third injection, October the 18th: 10 c.c. serum given; no improvement. Fourth injection, October the 22nd: 19 c.c. serum given; no improvement. Fifth injection, October the 25th: 17 c.c. serum given; no improvement. November the 17th: Returned to Clinic very much improved, with scarcely any twitching. When last heard from on April the 18th, 1918, his general condition was excellent and there was no evidence of choreiform movements.

Case 2.—E. S—, female, aged 10 years, admitted to Medical Clinic August the 13th, 1917, on account of twitching of face accompanied by irregular rotatory movements of right shoulder of

two months' standing. Tonsils had been removed one year ago. On September the 10th, 1917, on account of lack of response to medicinal treatment, she was given 12 c.c. of serum intraspinously, which was followed by more or less reaction, consisting of pain over body which persisted for eighteen hours. In one week's time she was completely cured.

Case 3.—R. W—, male, aged 10 years, admitted to Medical Clinic April the 16th, 1917, with a complaint of extreme nervousness associated with irregular jumpy movements of the left hand and arm which had commenced four months previously. He was unable to pick up objects with the affected hand; easily stumbled and fell; in fact, was so restless that his mother could not keep him in bed. The tonsils were found to be not only enlarged but diseased, and there was a presystolic murmur present. On September the 16th, 1917, in view of the fact that there was no response to medicinal treatment, he was given 12 c.c. of serum intraspinously. Second injection, September the 12th: 15 c.c. of serum; moderate reaction, consisting of vomiting; some improvement noticed. September the 20th: 15 c.c. of serum injected; considerable improvement; there was no reaction. October the 25th: 14 c.c. of serum injected; only an occasional twitching thereafter; marked improvement. April the 18th, when last seen, showed an occasional twitching, although the mother said he was a different child.

Case 4.—H. B—, female, aged 14 years, admitted to Medical Clinic August the 27th, 1917, exhibiting general twitchings over the whole body, particularly on right side, of three months' duration. Tonsils enlarged and diseased. One month previous to onset of chorea had an acute attack of tonsillitis. August the 30th: 10 c.c. of serum injected; vomited several times after the injection. September the 13th; 13 c.c. of serum injected; very slight improvement. This patient was lost sight of.

Case 5.—J. F—, male, aged 12 years, admitted to Medical Clinic August the 11th, 1917, with irregular spasmodic movements and twitchings over whole body; great difficulty in walking and feeding himself, of three weeks' standing. The tonsils had been removed four years previously. August the 13th, 1917: 15 c.c. serum given; considerably improved. August the 20th: 15 c.c. serum injected; very little further improvement. September the 6th: 15 c.c. serum injected; very much improved. September the 24th: 10 c.c. serum injected; twitchings still present but steadily improving. October the 22nd: 10 c.c. serum given; no twitchings present. November the 28th: When last seen showed no evidence of chorea.

Case 6.—M. T—, female, aged 7 years, admitted to Medical Clinic July the 27th, 1917, with severe jerking movements over entire body of one week's standing. Seventeen c.c. serum given intraspinously; at end of a week there was no evidence of chorea.

Case 7.—D. R—, female, aged 12 years, admitted to Medical Clinic May the 7th, 1917, with irregular spasmodic movements of the extremities of three months' standing. Throat appears normal; a mitral systolic murmur present; has suffered several attacks of severe sore throat in the past. May the 10th, 1917: 15 c.c. serum injected; slight headache; vomited several times; very marked improvement. May the 28th: No twitching.

Case 8.—D. M—, female, aged 15 years, admitted to Medical Clinic July the 11th, 1917, with twitching movements of all extremities and inability to talk, extending over a period of six months, previous treatments, including rest and medication, having made no impression on the progress of the condition. Eighteen c.c. serum injected; severe reaction. This patient did not return to the clinic because of the severity of the treatment, but it was subsequently ascertained that her choreiform movements had disappeared one week following the injection. When last seen by the public health nurse, November the 21st, 1917, she was normal.

Case 9.—C. M—, female, aged 9 years, admitted to Medical Clinic May the 17th, 1917, with irregular movements of face, hands and arms of three weeks' duration, becoming rapidly worse. This patient was unable to feed herself and had difficulty in standing. Tonsils were removed in 1914. May the 28th, 1917: 17 c.c. serum injected intraspinously; very severe reaction, the patient continuing to vomit for one week following the injection; in spite of this, however, there was an immediate improvement, and by June the 28th there were no manifestations of chorea. On October the 22nd, when last seen, there had been no recurrence.

Case 10.—H. A—, female, aged 12 years, admitted to Medical Clinic April the 30th, 1917; jerking movements of left arm, hand, and leg; inability to speak and great difficulty in feeding herself, of three days' duration. May the 10th, 1917: 15 c.c. serum injected; vomited several times; moderate reaction; some headache; slight improvement. May the 21st, 1917: Slightly increased movements; 15 c.c. serum injected, followed by pronounced improvement; slight reaction in the form of headache. July the 15th, 1917: Very much improved. July the 28th, 1917: 17 c.c. serum injected; movements completely disappeared.

Case 11.—P. C—, male, aged 8 years, admitted to Medical

Clinic May the 14th, 1917, for spasmodic movements of legs, arms and face off and on for a period of two years. Tonsils removed three years previously. May the 17th: 15 c.c. serum injected; considerable improvement. May the 28th: 17 c.c. serum injected. June the 11th: No sign of chorea.

Case 12.—R. McD—, female, aged 11 years, admitted to Medical Clinic July the 27th, 1917, with tremor in both hands and general weakness. Five years previously had a similar attack lasting three months and rheumatic fever one year ago. August the 2nd: 14 c.c. serum injected; slight headache; wonderful improvement. August the 11th: No evidence of chorea. When last seen on May the 9th, 1918, was in excellent health.

Case 13.—A. A—, male, aged 10 years, admitted to Medical Clinic May the 23rd, 1917, with twitching of arms and legs of a week's duration. Tonsils enlarged and diseased. On April the 23rd 15 c.c. serum injected; slightly improved. May the 28th: 15 c.c. serum injected; considerable vomiting; no improvement. June the 11th: 12 c.c. injected. This patient refused to return on account of the severity of the treatment, but a report from the private physician reveals that the child was completely cured.

Case 14.—L. B—, female, aged 13 years, admitted to Medical Clinic March the 1st, 1917, with spasmodic movements of arms and legs, particularly on the right side; twitching of facial muscles and impairment of speech; mitral regurgitant murmur. Tonsils were removed one month previously, having suffered from tonsillitis repeatedly. One intraspinous injection, 15 c.c., resulted in a complete cure.

Case 15.—L. P—, female, aged 13 years, admitted to Medical Clinic, November the 21st, 1917, with twitching of head and arms, frequently dropping objects, for the last three weeks. November the 1st: 10 c.c. injected; moderate reaction with headache; very pronounced improvement. November the 8th: 11 c.c. injected; no reaction; cured. April the 22nd, 1918: no evidence of chorea.

Case 16.—F. T—, male, aged 7 years, admitted to Medical Clinic April the 1st, 1918, with weakness of left side of body and jerking movements of the hand and arm, of two weeks' duration; difficulty in feeding himself. Tonsils enlarged and diseased. April the 4th: 15 c.c. serum injected; condition about the same. April the 11th: 21 c.c. serum injected; slightly improved. April the 25th: 22 c.c. serum injected; considerably improved; reaction more pronounced. May the 9th: no evidence of chorea.

Case 17.—F. C—, female, aged 5 years, admitted to Medical

Clinic May the 7th, 1917, with irregular movements of arms and legs, difficulty in feeding herself and also in walking, of two weeks' duration. Tonsils slightly enlarged and inflamed. May the 10th: 15 c.c. serum injected; severe headache and vomiting; considerably improved. May the 21st: 15 c.c. serum injected; movements slightly increased. June the 4th: 15 c.c. serum injected; very much improved; can feed herself. June the 28th: 15 c.c. serum injected; all signs of chorea disappeared. May the 2nd, 1918: No return of the chorea.

Case 18.—P. G—, female, aged 9 years, admitted to Medical Clinic April the 15th, 1918, with irregular movements of hands, arms and head, off and on for six years. April the 22nd: 18 c.c. serum injected; very much improved. May the 2nd: 20 c.c. serum injected. May the 9th: 16 c.c. injected; choreiform movements disappeared.

Case 19.—W. H—, female, aged 9 years, admitted to Medical Clinic January the 3rd, 1918, with irregular twitchings of the extremities on and off for one year; partial paralysis of the right side. Tonsils removed one year and a half ago. January the 10th: 18 c.c. serum injected; slightly improved. January the 17th: 20 c.c. serum injected; decided improvement. February the 14th: No evidence of chorea. April the 17th: No evidence of chorea, although the child has a facial tic.

Case 20.—S. B—, private patient, male, aged 11 years; twitching of all extremities to marked degree; mitral systolic murmur present; tonsils diseased. November the 23rd: 18 c.c. serum injected; mild reaction. November the 27th: Much improved. November the 28th: 20 c.c. serum injected; marked improvement. December the 7th: 24 c.c. serum injected; improving. December the 15th: 24 c.c. serum injected; cured. This patient was one of the most severe cases, and was so bad that he could hardly walk or talk.

Case 21.—E. W—, private patient, aged 9 years. First seen December the 7th, 1917, for general twitchings and difficulty of speech and in taking food of one month's duration. Tonsils enlarged and diseased. December the 20th: 20 c.c. serum injected, after which twitching almost disappeared; mild reaction. December the 27th: 24 c.c. serum injected; very little evidence of chorea remaining. January the 6th, 1918: 25 c.c. serum injected; choreiform movements entirely gone. When last seen, in April, 1918, the child's physical condition was much improved and there was no evidence of the previous infection.

Of the series of 23 cases observed over a period of almost a year

and a half, 77 per cent. were cured, 19 per cent. improved, and one case unimproved, this one having refused further treatment on account of a severe reaction. Of the cases observed over this period of time there has so far been no recurrence.

Of the 23 cases, 17 were of a mild degree and 5 were severe. In 4 instances the duration of the disease was over a year, while the remainder showed symptoms on an average of six and a half weeks' standing.

The average number of injections given was three, but several were given one injection, while in one instance five were administered before a cure was effected. The average amount of serum employed was 17 c.c. Nineteen cases were cured in three weeks and four were cured within one week. All the severe cases required more than one injection.

Discussion.

In practically every instance there had been previous medical treatment given, with the usual indifferent and unsatisfactory results. In most cases there was a mild reaction in the form of vomiting and an occasional rise in temperature, and on only one occasion was the reaction of such a nature as to prevent the return of the patient to the Clinic owing to parental objection. The withdrawal of an equal amount of spinal fluid as serum injected did not appear to be necessary.

It occurred to us that failure to obtain satisfactory results and prompt reaction might be due to the lack of sufficient antibody production in the plasma. This seems to us quite within the limits of possibility taking into consideration the individual varying susceptibility to disease.

Results.

(1) Auto-serum therapy in our hands has been productive of infinitely more satisfactory results than any other form of therapy, a cure of 77 per cent. of the cases being effected within three weeks' time.

(2) The technique is so simple that it may be employed in any home or out-patient department under mild anæsthesia.

(3) With the observance of proper precautions the reactions are negligible.

(4) There have so far been no recurrences in over a period of a year and a half, but more time is necessary in order to give a more certain decision on this point.

The authors desire to express their appreciation of the co-operation of the house staff and nurses of the Hospital

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THE TREATMENT OF PULMONARY TUBERCULOSIS IN CHILDREN BY ARTIFICIAL PNEUMOTHORAX.

By E. Stolkind, M.D.

The course of pulmonary tuberculosis in children is frequently unfavourable, though much depends on the constitution, nervous system, heredity, treatment, social conditions, etc. As at present we do not possess a specific to destroy the tubercle bacilli in the patients, we must treat every case of pulmonary tuberculosis with all our modern means, *i. e.* hygieno-dietetic *régime* (so-called sanatorium treatment), and in suitable cases simultaneously with tuberculin and artificial pneumothorax. With this combined method of treatment I have achieved much better results than with only one of them (on sanatorium treatment and tuberculin, see my book, 'Tuberculosis,' Part I.)

For the treatment of pulmonary tuberculosis by artificial pneumothorax we are indebted to (1) Carson (Liverpool, 1821), who first suggested it, to Hughes, etc.; (2) to Potain, who was the first to treat cases of pleural effusion by introducing nitrogen into the pleural cavity; (3) to Forlanini, who was the first to treat cases of pulmonary tuberculosis by artificial pneumothorax; and later to Murphy, Brauer, Saugman, and others. Treatment by means of artificial pneumothorax has been rarely employed in children, even in the most suitable cases of pulmonary tuberculosis. The reasons for the rare application of this new method are mainly as follows: (1) The indications for pneumothorax are not absolutely agreed upon by physicians; (2) the technique is sometimes very difficult; and (3) certain complications may appear during the treatment.

Indications and Contra-indications.

The "ideal" case for artificial pneumothorax is one of advanced pulmonary tuberculosis (so-called second or third stage), with destructive (ulcerative) one-sided disease, in which the other lung is at least clinically normal. The following are examples of such cases:

Case 1.—A well-developed boy, aged 12 years, of a healthy family. The illness began with cough, fever, night-sweats, etc. Tubercle bacilli were found in the sputum. In the right lung a chronic tuberculous infiltration, mostly of the upper lobe, was diagnosed; the left lung was clinically normal. I therefore performed an artificial pneumothorax with relatively good result.

Case 2.—A well-developed youth, aged 17 years, of a healthy family. The illness began about six months before I saw him with cough, followed by fever, wasting, sweating, etc. The sputum contained traces of blood, numerous tubercle bacilli, and elastic tissue. The X rays (Dr. Gendelman, of Kiev, and Dr. V. Maragliano, of Genoa) and clinical examination showed infiltration of the whole upper lobe, with cavities and disseminated foci in nearly the whole lower lobe of the left lung. The right lung clinically was practically normal. On account of advanced and progressive tuberculous disease I performed artificial pneumothorax. After three months' treatment by pneumothorax simultaneously with a hygieno-dietetic *régime* and tuberculin the patient gained about 26½ lb. in weight, and no more tubercle bacilli could be discovered in the sputum. X rays showed that there were adhesions at the apex and the base; the lung was nearly completely collapsed except at the apex. The heart was displaced a little to the right side, and the præcordial region became more prominent each time after introducing the gas. At the end of the first year of pneumothorax treatment the patient had improved very much, and no complications appeared.

Case 3.—Artificial pneumothorax was performed on a girl with tuberculosis which involved nearly the whole left lung and especially affected the upper lobe, where small cavities and infiltration were found. Slight serous pleurisy occurred as a complication.

Case 4.—In a girl, aged 16 years, signs of tuberculosis appeared, and later, when a cavity in the left apex was found, an artificial pneumothorax was performed. Gradual improvement followed, in spite of the displacement of the heart to the right side and the occurrence of pleural effusion.

Such typical cases of advanced and progressive pulmonary tuber-

culosis, in which only one lung is diseased and the other is clinically healthy, are rare. In the great majority of cases we find that the other lung is also more or less diseased. In such cases we employ pneumothorax treatment if the disease in the other lung is inactive or chronic and quiescent. As examples I will mention the following two cases :

Case 5.—A weak and badly-nourished girl, aged 15 years. The illness began with cough, general weakness, sweating, etc. In the right lung a cavity in the apex and many tuberculous foci were found ; the left lung showed apical phthisis. Right artificial pneumothorax was performed and was followed by serous pleurisy. Gradual improvement took place.

In the following case a cavity in the other lung occurred during pneumothorax treatment :

Case 6.—A girl, aged 14 years, belonging to a healthy family, was suffering from tuberculosis of the left apex. After some improvement tuberculosis of the left lung with a small cavity in the more diseased upper lobe, as well as apical phthisis on the right side, were found. Owing to pleural adhesions only the upper part of the left lung was collapsed. Nevertheless, considerable improvement and disappearance of the cavity in the left lung took place. But at the end of the treatment a small cavity in the right lung was diagnosed.

If we find extensive chronic lesions in both lungs we first perform pneumothorax in the most diseased lung. Afterwards, if it is necessary and there is considerable improvement, we can let the gas be absorbed or it may be pumped out, and then a pneumothorax on the other side may be performed.

We also use pneumothorax treatment in cases where the disease is not much advanced (first stage of pulmonary tuberculosis), if the process, in spite of proper treatment by other means, advances, and especially if it progresses rapidly, or if there are symptoms of toxæmia.

As we do not possess at present a sure means of stopping the hæmorrhage, pneumothorax is indicated (1) in cases with recurrent hæmoptysis, (2) if the hæmorrhage is severe and cannot be otherwise arrested. Of course the lung from which the bleeding occurs should be recognised and completely compressed, for which purpose we introduce at once 2000–3000 c.c. of gas.

If the cavity cannot be completely collapsed, hæmoptysis may occur in spite of an artificial pneumothorax.

For example, in Case 7 (for which I am indebted to Prof.

Matthes, in whose clinic I was studying), a severe tuberculous destructive process was found with cavities in the upper lobe of the right lung. There was a recurrent hæmoptysis. Owing to adhesions the upper lobe could not be collapsed, and a perforation of the cavity and suppurative pleurisy occurred. In spite of pyo-pneumothorax a severe hæmoptysis took place three times during the last week of his life.

Autopsy.—The right chest showed a much thickened pleura, a completely compressed and airless lower lobe of the lung adherent to the chest-wall, and a very slightly collapsed upper lobe with a severe ulcerative caseous process and multiple cavities. A bigger ulcerative cavity of the apex was in communication with a bronchus; and there was an ulceration of a bronchial artery with a hæmorrhage in that cavity. There were purulent pleurisy and pneumothorax in communication with the cavity. In and around the cavities of the right upper lobe a wide-spread development of fibrous tissue was noticed. In the left lung no tubercles were found.

In another case of mine, with severe bilateral pulmonary tuberculosis and a good artificial pneumothorax in the more diseased left lung, considerable hæmorrhage occurred during a long journey, probably from the uncollapsed right lung.

Artificial pneumothorax is indicated also in cases of acute and progressive unilateral pulmonary tuberculosis (acute tuberculous pneumonia or broncho-pneumonia).

For example, in one of my cases, in a student, the illness began with a remittent fever (102° F. and more), profuse sweating, visible wasting, etc. There was only once a little sputum, which contained numerous tubercle bacilli. As early as twenty-three days after the beginning of the disease a nearly complete infiltration (pneumonia) of the whole left lung was diagnosed. Artificial pneumothorax had not much compressed the lung owing to lateral pleural adhesions and displacement of the mediastinum. Three weeks later serous pleurisy developed and the left lung, as well as the mediastinum, were more displaced to the right, with the apex of the heart reaching to the anterior right axillary line. A great number of tubercle bacilli were found in the pleural effusion. Gradual improvement took place and the temperature became normal. The patient, whom we considered as a hopeless case, and who lay like a log, not being able to turn over, later began to move himself, to sit up, and afterwards to walk. The mother, in spite of my advice, took the weak and very delicate patient to Davos. There, as Dr. Muralt wrote me, the patient at first felt better, but later, symptoms

of toxæmia, tuberculosis of the right lung, tuberculous otitis media, etc., developed.

When the patient came back to me (at Nervi) I found the same pleural effusion, with the displaced heart, slight disease in the right lung and tuberculous meningitis. Death was due to the last complication sixteen months after the beginning of the pneumothorax treatment.

If an active disease is present in the other lung also, and the compression of the more diseased lung is impossible, and especially in much advanced and acutely progressive cases of bilateral tuberculosis, only slight improvement may be expected or none at all. In such cases I generally do not advise pneumothorax treatment.

In 1911 I described a case of acute and progressive pulmonary tuberculosis of nearly the whole right lung and the left apex in a girl, aged 14 years, in whom, owing to the great mobility of the mediastinum, a collapse of the right lung could not be obtained ; the pneumothorax moved the whole mediastinum over to the left side and the dyspnœa became much more aggravated.

Artificial pneumothorax is indicated also in cases of pulmonary tuberculosis (1) with pleural effusion (hæmothorax, serous or suppurative pleurisy), (2) spontaneous pneumothorax, (3) sero- (pyo-) pneumothorax. In such cases we gradually remove the effusion and introduce gas. For example, in one case, in a very weak and badly-nourished youth from a tuberculous family and with symptoms of pulmonary tuberculosis, an extensive serous pleurisy on the left side and displacement of the heart were found. The effusion was removed and gas was introduced.

In cases of carcinomatous pleurisy artificial pneumothorax is indicated to relieve the pain (Garré and others).

Temporary artificial pneumothorax I use also for more exact diagnosis in some cases of chronic pulmonary diseases, when pleuroscopy (thoracoscopy), *i. e.* illumination of the pleural cavity, is required. For pleuroscopy (thoracoscopy) it is necessary to produce at first a pneumothorax and afterwards to introduce a pleuroscope (thoracoscope), *i. e.* a fine, straight Nitze's cystoscope (Charrière, 12–14).

Pleuroscopy enables us to see (1) tuberculous nodules on the pleura, (2) sometimes the place of the rupture of the lung by spontaneous pneumothorax, (3) tumours of the pleura and sometimes of the lung. It is important to note here that for diagnostic purposes in cases of suspected tumour of the pleura and the lung, as well as in the abdomen, it is an advantage first to introduce some gas into the

cavity and afterwards to make a radioscopy. This renders the X-ray examination much easier and more certain, and the tumour can sometimes only be made visible in this way. Details about pleuroscopy (thoracoscopy) and laparoscopy are described in my articles in 'Practichesky Vrach,' 1912, and 'Medical Press,' 1919.

Pneumothorax is indicated also in cases of pulmonary abscess (one such case I have observed in the clinic of Prof. Forlanini), and in some cases of bronchiectasis, in which pleural adhesions often prevent the introduction of gas. Greer reported a case of acute interlobar empyema which drained with complete success through the bronchus in a child, aged 5 years, after artificial pneumothorax.

Leuret and Aubert recorded a case of abscess of the lung in a girl, in whom, owing to repeated serious hæmorrhages occurring with the expectoration of large quantities of purulent matter, artificial pneumothorax was performed with complete success.

Pleural adhesions are not a contra-indication for pneumothorax treatment. They may, however, prevent the production of a pneumothorax or of a complete collapse of the diseased lung, as happened in some of my cases. But in some cases I had a relatively good result, even from a partial pneumothorax. For example, in a case of pulmonary tuberculosis, with a cavity the size of a pigeon's egg, I was able to perform a partial pneumothorax only in the upper part of the right lung. In spite of that, X-ray examination (Dr. Maragliano) before and after pneumothorax treatment showed the disappearance of the cavity. It is worth mentioning that in this case I obtained a partial pneumothorax after the fourth puncture, and that my attempts to produce other gas pockets were unsuccessful. Four months later, however, a serous pleurisy occurred, which showed that there was a free pleural space also in the lower part, and pneumothorax could be performed.

Contra-indications.

Pneumothorax treatment is contra-indicated in cases of pulmonary tuberculosis, complicated by other severe diseases, *e. g.* of the circulatory system, liver, kidney, or severe diabetes, emphysema, etc. In one of my cases of severe tuberculosis of the right lung, with a cavity in the upper lobe, nephritis was found (albumin, granular and hyalin casts, fatty degenerated renal epithelial cells, red corpuscles, etc.). Owing to continuous aggravation of the patient's condition I performed an artificial pneumothorax. In spite of the adhesions at the right apex almost a complete collapse

of the right lung was obtained. After four months' pneumothorax treatment general improvement was noticed, and only traces of albumin were found in the urine. Similar cases have been described by Weiss, Pisani, and others. Slight intestinal and laryngeal tuberculosis is not a contra-indication for pneumothorax treatment. In one case of severe pulmonary and intestinal tuberculosis, in which I could produce only a small pocket pneumothorax, no improvement or harmful results occurred.

Contrary to the opinion of other authors I think that asthma is only a contra-indication when it is of aortic, cardiac or renal "origin." According to my theory "organic" as well as functional asthma is of toxic and nervous origin, therefore pneumothorax treatment, which often removes or diminishes the intoxication (if it is of tuberculous origin) and improves the nervous system and general condition, may cause the disappearance or diminution of the asthmatic attacks. In some cases there may be no improvement. In one of my cases the asthmatic attacks were not at all influenced by pneumothorax, and I was obliged to diminish the intrapleural pressure and to maintain a negative one.

In another case, which I observed in the clinic of Prof. Brauer, a boy, aged 13 years, had suffered from asthmatic attacks from early childhood. After pneumothorax had been performed the recurrent asthmatic attacks completely ceased for more than six months.

In another case of pulmonary tuberculosis and asthma which I saw in Home Sanatorium at W. Southbourne Dr. Esslemont performed a pneumothorax, and the asthma attacks, though they reappeared, did not assume such a severe form as they did before the introduction of gas; 450 c.c. of gas were again introduced, and after that the severity of the attacks was still further reduced.

Technique.

I will only briefly mention some peculiarities about the technique, especially concerning radioscopy, which are important for pneumothorax treatment of children and adolescents.

There are many forms of pneumothorax apparatus, some of which are unnecessarily complicated. The apparatus should be easy to sterilise, portable, and not expensive. Every medical man can construct such apparatus himself.

In my first cases I introduced only nitrogen, but later nearly always air, and I could not find any difference between nitrogen and air in the influence on the compressed lung and general state.

The analysis of the gas introduced into the pleural cavity had also shown that there is a diffusibility of the gas, and that after a short time there can always be found a mixture of the same gases (nitrogen, oxygen, and carbonic acid), independently of whichever gas was previously introduced (Davy [1823], W. Ramsay [case of M. Davies], Tachau and Tilenius, Tobisen, Webb, Gilbert, James and Havens).

Some authors propose to use oxygen at the first operation for avoiding the possibility of gas embolism.

The first introduction of gas into the pleural cavity can be produced either by incision or by puncture. It is only in cases in which owing to pleural adhesions repeated attempts to introduce air are unsuccessful that I first make a small incision through the skin and intercostal muscles to the pleura.

For gas insufflation by puncture various needles have been proposed. Murphy used a simple Potain's trocar, which was afterwards modified by Würtzen and Kjer-Petersen, Saugman and others, as well as by myself. My needle-trocar, which is especially of use for children at the first operation as well as for refills, is much shorter and finer than Potain's trocar, and can be taken to pieces. The needle is that of an ordinary syringe, and its end is sharp, oblique and very small. The upper part of the cannula is constructed so that by removing it and the pilot a Record syringe can be attached.

At the first operation a small U-glass manometer with coloured alcohol, as I have seen it used by Würtzen, of Copenhagen, can be introduced near the needle-trocar with a view to diminishing the risk of gas embolism.

As to manometric fluctuations I will only mention here that the manometric pressure should be adapted for every patient. In some cases, especially of pleural adhesions, I was obliged to introduce gas till a high pressure was reached; in other cases it was necessary to maintain a low pressure.

As to *radioscopy*, without which I would not advise the pneumothorax treatment in children, I will repeat here what I said at the International Congress of Medicine (London): "I wish to emphasise that for modern pneumothorax treatment it is necessary to use not only the manometer, but also radioscopy; without the latter a proper pneumothorax treatment is almost impossible."

X rays are of great value in considering the diagnosis and treatment of pulmonary tuberculosis, the indications for artificial pneumothorax, as well as during the whole period of application of this

method. Radioscopy shows how much the lungs are diseased, which part is most affected, the location of deep-seated areas of consolidation, as well as small cavities, which often cannot be discovered by other means, the presence of slight pleural effusion, and the mobility of the diaphragm. X rays partly help also to find the place where the lung which we wish to compress seems to be normal or less diseased, and where therefore we are more likely to find less developed pleural adhesions or a free pleural "cavity," etc. In some cases I refused to perform pneumothorax because radioscopy had shown that the other and "better" lung was more diseased than I expected after physical examination.

After introducing gas the X rays show whether we have really performed a pneumothorax, and if so, on what size and where; how the lung, the cavities, etc., are compressed, if there are pleural adhesions, their location, etc.

In the absence of pleural adhesions, in case of a successful pneumothorax, the X-ray screen shows the lung compressed from all sides in the middle of a pleural cavity close to the mediastinum. In cases of firm pleural adhesions I have seen various forms of the collapsed lung (convex, concave, convexo-concave, etc.), according to the situation of the adhesions. In some cases the adhesions were at the apex and diaphragm; in others at the chest-wall, as well as between the pericardium and diaphragm, etc. In one case of mine the X-rays showed that there was also some gas on the other side of the vertebral column. Radioscopy shows the displacement of the heart and mediastinum, the compression of the other lung, the diminution or increase of pleural effusion, the appearance or disappearance of existing pleural adhesions, and the presence of cavities, pneumonia, etc., in the other lung. Radioscopy is also a guide as to when to make the refills and how much gas to introduce each time. In the last period of pneumothorax treatment X-rays help much to decide when it is possible to stop the refills, and when we try it we can see if the cavities and diseased lung are cured or not, in what condition the compressed lung is (*e. g.* expansion of the lung), if it is necessary again to compress the lung, etc.

As to the quantity of gas injected into the pleural cavity at the first operation and refills, my opinion is that in the pneumothorax of children it should be carefully dosed, and that no more than 500 c.c. of gas should be introduced at one time. The amount of gas introduced each time and the intervals between refills in children depend upon (1) the pressure in the pleural cavity; (2) the degree of the displacement of the heart and mediastinum; (3) the state of

the collapsed lung; (4) the rapidity of gas absorption; (5) the patient's respirations; (6) the general condition; (7) the conduct of the child during gas insufflation. Generally the refills in children during the first months should be made nearly every seven days, and later every two to six weeks.

At the first operation, as well as at refills in the case of children, anæsthetics—general or local—should always be used. Before the operation we inject pantopon or morphine subcutaneously under an ethyl chloride spray. Novocain ($\frac{1}{2}$—1 per cent.) combined with adrenalin should be injected under the skin and into the muscles and pleura (under an ethyl chloride spray) a few minutes before the operation to make the insertion of the needle painless.

Rist, in a case of tuberculosis in an infant, aged 20 months, used chloroform at each insufflation of gas.

Complications.

In the pneumothorax treatment of children the same complications may occur as in adults. Some of these complications, *e. g.* infection by using an infected needle or gas, can be easily avoided. The wounding of the lung in a sound part is of no importance. I have seen a patient in whom at a refill a piece of the broken needle was left in the pleural cavity, in which it still remains without any harm.

The most frequent complications are subcutaneous emphysema and pleural effusion.

Subcutaneous emphysema occurs in the great majority of the cases. It was noticed in my cases (in nearly 90 per cent.) as well as in those which I observed in the clinics of Forlanini, Brauer, Matthes and others. The traumatic emphysema is generally not a large one, and is situated usually under the skin of the chest. In one of my cases subcutaneous emphysema occurred in the chest-wall and on the right side of the neck. Dr. Christopher Rolleston wrote me about his case of a girl in whom, after artificial pneumothorax, the crackling could be heard right down the right arm to the fingers.

The occurrence of subcutaneous emphysema much depends upon the tone of the tissues, upon the pleural pressure (more frequent in high pressure), etc. The emphysema is harmless and disappears in a few days.

More serious—but very rare—is the occurrence of a deep emphysema in which the gas gets between the endothoracic fascia and parietal pleura, or under the visceral pleura. I have seen only one example

of the kind. This was a case of pulmonary tuberculosis with cavities in the right lung and intestinal tuberculosis, in which I could perform only a small pocket pneumothorax on the right side. After the fifth gas insufflation under high pressure (+ 20 to + 25) the patient complained during the operation of pain in the right shoulder, as well as in the right side of the chest and in the throat. A few hours later the patient, who was very nervous, was much alarmed and thought that he was dying; he had difficulty in swallowing, speaking (he could only talk in a whisper), and breathing, as well as subcutaneous emphysema on the right side of the neck. All these symptoms disappeared in the next two hours and the subcutaneous emphysema in forty-eight hours. Later, on further introduction of gas, I found only subcutaneous emphysema.

It should be noticed that generally in cases in which a deep mediastinal emphysema occurs, it is impossible to produce a complete collapse of the diseased lung; and if in such cases pneumothorax treatment is necessary, we must avoid a high positive (manometric) pressure. (For other details of subcutaneous emphysema, see my article, 1896–7.)

Pleurisy with effusion is the other complication which we very often observe in pneumothorax treatment. Dry pleurisy can rarely be diagnosed, as radioscopy as a rule cannot help in the diagnosis of this condition.

The diagnosis of *pleural effusion* in pneumothorax treatment is easy, especially by means of X rays, even in cases of appearance of the smallest quantity of fluid. Pleural effusion was observed in about 75 per cent. of our fifty cases of pneumothorax, and in some of these cases the exudate could be discovered only by X-ray screening.

Forlanini, Brauer, Saugman, Begtrup-Hansen and some others noticed pleural effusion in about 50 per cent. of their cases. The effusion is mostly serous and seldom purulent or hæmorrhagic. At the beginning the serous effusion is generally clear and of a yellow colour, but afterwards it may be green or somewhat blood-stained. In a few of our cases it was finally the colour of milk. In one case the fluid looked purulent, though it remained sterile. In another case the exudate became thick, like jelly.

In examination of my cases of pneumothorax the serous effusion showed the following characters: Specific gravity 1015–1028, albumin in about 4–6 per cent. (in one case 7·2 per cent.), positive Rivalta's reaction, lymphocytes (mononuclear) and endothelial cells, sometimes eosinophils and often tubercle bacilli. The

mononuclear cells are of endothelial origin, as was found by Prof. Vincenzo Patella (Sienna) as early as 1903.

Mayer, as well as Rist and Pfeffel, often found in the pleural effusion at first a few morphological elements and abundant eosinophils (5–6 per cent.), and later an increase of lymphocytes.

Antibodies also are present in the exudate. Muttermilch and Hertz found hæmolytic and bactericidal complements in a serous pleural effusion. Aronstamm found in the exudates a very considerable hæmolytic power, and many amboceptors and complements.

The pleural effusion may appear at intervals ranging from weeks to months after introduction of the gas. The shortest period in our cases was three weeks. In Pilsticker and Vogt's case, in a child, aged 15 months, with a cavity in the right lung, serous effusion was diagnosed forty days after the first insufflation of gas. In spite of the pleurisy the child improved.

The quantity of pleural effusion varies from a few drachms to some pints. The effusion may remain unabsorbed for many weeks or months, and in exceptional cases for years. It is often accompanied by fever, lasting for days, weeks, or even months.

The effusion is mostly due to infection, which is chiefly tuberculous, though there must be also other unfavourable conditions of a chemical and physical nature. Its occurrence does not depend upon gas insufflation, as Burckhardt, Königer, Nötzel and others supposed as a result of their experiments on animals. Wintrich (1854), Meyerstein, Tiegel and others also, from their experiments on animals, came to the contrary conclusion—that gas introduction alone does not provoke pleural effusion. I have not observed a single case of pneumothorax effusion after "chill," as Forlanini supposed, nor after pushing a small piece of the skin or of other tissue by the needle into the pleural cavity, as some authors write.

The appearance of pneumothorax effusion sometimes may probably be due to high pressure in the pleural cavity together with the extension of pleural adhesions.

The influence of the effusion on the course of pulmonary tuberculosis varies. In some cases the influence may be a good one, in others unfavourable, in others there may be none at all.

The improvement which is often observed in phthisis after the occurrence of pleural effusion is due, not only to better rest and immobilisation of the compressed lung, but probably also to the sero-biological influence of the exudate, which contains many antibodies (hæmolytic and bactericidal complements), as was mentioned above.

In some cases we observe an unfavourable influence of the pneumothorax effusion upon the course of pulmonary tuberculosis, *e. g.* thickening of the pleura, development of pleural adhesions, etc. Such events, of course, may happen also in cases of pleural effusion without pneumothorax.

In every case of pneumothorax effusion the patient should be examined frequently and carefully. In cases of great displacement of the mediastinum, with dyspnœa, palpitation, or other heart attacks, or if there is too much fluid in the pleural cavity and a too high positive pressure, the exudate—whole or part—must be removed and replaced by gas. In some cases this replacement must be often repeated. In general, every individual case of pneumothorax serous effusion must be watched and treated accordingly.

The occurrence of *suppurative effusion, pleural shock, pleural reflex* and *gas embolism,* which are very rare, are the most dangerous complications in pneumothorax treatment. These accidents I will describe in detail in another article. I will only mention here that in Case 7, owing to perforation of the pulmonary cavity, pyopneumothorax occurred. In another case there was at first a serous and later a purulent pleural effusion.

I have seen a case of intercostal fistula with discharge of pus, as well as of air, on coughing after an unsuccessful attempt to perform an artificial pneumothorax. The physician made an incision and cut the pleural adhesions, which covered a superficial pulmonary cavity, and from this suppurative effusion had followed. A similar case—a fistula after too deep incision—was reported by Keller.

Pleural reflex, pleural shock and *gas embolism* have hitherto not been sufficiently studied. The differential diagnosis between pleural shock and gas embolism is often impossible, even on post-mortem examination. Sometimes ophthalmoscopy may be of value in the diagnosis of gas embolism.

Experiments upon introduction of gas into the blood-vessels of animals as well as cases of accident in operations on the human chest have been described by many authors. Redi, Heide, Camerarius, Morgagni and others related long ago how animals could be killed by introducing air into the veins. Very interesting experiments on animals of the introduction of gas into the pleural cavity, veins, etc., were described by Bichat (1808), Nysten (1811), Cruveilhier, Amussat (1837), and the Commission of the Académie de Médecine (1837–38), and later by König (1864), Jürgensen, Brauer and Beneke. The articles of Zesas, as well as of Welch and Rolleston, should also be consulted.

For the pathogenesis of shock see the papers of Crile and Henderson. The following case is an example of shock (emotional and traumatic): The patient was a nervous girl, with recurrent hæmorrhage and severe tuberculosis of the right lung, in which I made an artificial pneumothorax. At the first two insufflations of gas I used pantopon and the ethyl chloride spray. At the third introduction of gas I used only freezing. But at this time, as soon as I introduced the needle into the pleural cavity the patient became pale, made some movements with the limbs and lost consciousness, but recovered a few minutes later. At the following refills, at which I at first again injected pantopon, as well as at those at which I only used freezing, no accidents occurred.

Conclusion.

The results of pneumothorax treatment in suitable cases are absolutely satisfactory. In many of my cases I have noticed, after some time (weeks or months), a general improvement or a clinical recovery. Generally the temperature falls, the cough and sputum, as well as tubercle bacilli (in cases of complete collapse of the lung) diminish or disappear. Pneumothorax treatment has a good influence also on the nervous system. Children and adolescents in the majority of cases gain in weight.

I am therefore of the opinion that pneumothorax treatment should be applied, not only in adults, but also in children, in every case of advanced pulmonary tuberculosis; but not as the last resort, when it is too late.

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Royal Society of Medicine.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Friday, October the 25th, 1918.

The President, Dr. J. Porter Parkinson, *in the Chair.*

A Case of Urticaria Pigmentosa.—Dr. J. L. Bunch.—The patient, a boy, aged 6 years, had a very well-marked pigmented eruption over the whole of the trunk and limbs, spreading up also on to the neck, but leaving the face quite clear. Each spot persisted for a considerable time. He had a very well-marked factitious urticaria. The spots seemed to irritate him to some extent; he scratched them from time to time, but they were said not to interfere with his sleep. He was said to be a fairly good patient and did not lie awake scratching for long. He was a Russian dancer, it was said, and had been trained for the stage. The question had arisen as to whether Urticaria pigmentosa was more common among Russians and Poles than among English people. Not many of these cases were seen at any time. Those seen at the Queen's Hospital for Children appeared to be mostly of Polish or Russian nationality. The lesions tended to clear up rather late in life; sometimes they might start about puberty; but the usual happening was for them to start soon after birth, as in this boy.

This boy appeared to be fairly well nourished. He was admitted into Dr. Porter Parkinson's ward, in the first place, because of vomiting and diarrhœa, and he had a definite rise of temperature. When the diarrhœa and vomiting were got rid of, the spots did not seem to have improved; in fact there had been very little change in his condition during his stay in hospital.

Case of Aplastic Anæmia.—Dr. J. Porter Parkinson (*vide* p. 1).

A New Counting Chamber for Cells, etc., in Fluids.—Dr. K. S. Bhat.—The chamber was of the Bürker type, each ruled area being 5 mm. square, and the depth 0·1 mm. The volume over each ruled area was therefore 2·5 c.mm., or 5 c.mm. over the two. The rulings were so placed that, looking through the microscope, the two left-hand top corners were both seen to be occupied by doubly-bisected squares, without having to turn the slide round. Each ruled area was practically a Türk square with the lines prolonged into a surrounding row of millimetre squares, a few lines being added to make the subdivisions more uniform. Four points were also marked on the slide where the corners of the coverslip ought to lie.

General usefulness was claimed for the chamber, but little originality. Bürker's principle of primary coverslip application ensured uniform cell distribution. Each half of the chamber served as a control for the other. The large size of the ruling, with the different degrees of subdivision in different portions of it, made the chamber equally useful for fluids with high cell contents like blood and low ones like some cerebro-spinal fluids.

Friday, November the 22nd, 1918.

Case of Shortening of the Limbs on one side of the Body: ?Osteogenesis Imperfecta Unilateralis.—Mr. J. E. Adams.—The patient was a boy, aged 6 years, the ninth child in a family of eleven. The parents and other children were quite healthy, and there was no history of miscarriages. The abnormality of the right lower extremity was first noticed when at 18 months the child began to walk. The abnormality in the upper extremity was not observed until he came to hospital. When he was first seen, in 1915, there was a shortening of 2 in. in the leg, and temporarily a boot was supplied with a thickened sole, which he wore without pain. Apparently there had never been pain, and he used both upper and lower extremities perfectly well. The present condition developed in its entirety in March, 1918. The right lower extremity was $3\frac{1}{2}$ in. shorter than the left, and the right upper extremity was considerably shorter than its fellow. The Wassermann reaction with the serum and von Pirquet's reaction were negative. The urine had been twice examined for Bruce Jones' proteid, with negative results. Except for measles at the age of 8, and a slight attack of jaundice last March, the boy had been quite healthy. It was a remarkable fact that the condition was limited almost entirely to the right side of the body. There were bosses on the skull on both sides, but that was the only exception to its unilaterality. The bones affected were the upper end of the right humerus, the lower end of the radius, some metacarpal and phalangeal bones of the right hand, the upper and lower ends of the femur, the upper and lower ends of the right tibia, the upper end of the fibula, and to some extent the metatarsus and phalanges on the right side. Most of the skiagrams showed a lesion which was rather suggestive of inflammatory change than of any other obvious pathological lesion. Tubercle seemed out of the question, there was nothing to support the idea of syphilis, and a pyæmic lesion was improbable.

Dr. H. C. Cameron thought that the case closely resembled that which he had shown at the Section last April (*vide* British Journal of Children's Diseases, 1918, xv, p. 273), when the general opinion was that it was a case of multiple enchondromata.

Dr. L. Guthrie regarded the case as a very anomalous condition of osteogenesis imperfecta.

Dr. F. Parkes Weber suggested that it was a case of local osteitis fibrosa.

Case of Oxycephaly.—Dr. H. C. Cameron showed a case in a baby, aged 7 weeks. There was one other child in the family, which was healthy, and there was no other similar affection in the family. The skull was of normal measurement for the age, viz. 15 cm., and the child's weight was 11 lb. 7 oz. The mother noticed extreme prominence of the eyes at

birth, and thought they were not so prominent since the first few weeks of life. But they were still decidedly prominent, the orbits no doubt being shallow. The skull showed the ordinary appearance of mild oxycephaly or tower skull. The optic disc was normal, and there was no evidence of either optic atrophy or retinitis pigmentosa. The interest of the case was that it showed a symmetrical deformity of the thumbs and great toes—a polysyndactylism—giant great toes and giant thumbs, consisting of the union of two separate thumbs and two separate toes. Dr. Cameron had seen an exactly similar case in a baby of about the same age once before.

Case of Achondroplasia.—Dr. H. C. Cameron also showed a second case of achondroplasia in a child, aged 14 months, which was probably associated with hydrocephalus.

Case of Chronic Priapism.—Dr. Eric Pritchard showed a case of what he regarded as vaso-motor habit in a boy, aged 4 years. When he was about eight days old he was circumcised. The after-dressing was apparently unsatisfactory, so that there was soreness. The second night after the operation there was considerable turgescence of the organ, and during the next three or four days the penis was enormously swollen and apparently painful too, after which date the wound began to heal and the pain to subside. The penis was erect during sleep, and subsided during the day; there had been nothing of the kind before the operation. Dr. Pritchard thought that the parents' anxiety tended by suggestion to keep up the condition, because as soon as the child was asleep they hastened to pull down the bedclothes to look at it, and talked about it in the presence of the child.

SECTION OF LARYNGOLOGY.

February the 1st, 1918.

Case of Double Lacrymal Stenosis.—Dr. James Donelan.—The patient, a boy, aged 11 years, had suffered from epiphora for several years owing to lacrymal stenosis. For this two external operations had been tried over two years ago. The result was not good, as the skin over the lacrymal sac on both sides was approximately in the same condition. Dr. Donelan therefore performed internal dacryocystotomy (West's operation) on the right side, and the result appeared so satisfactory that he proposed to attempt the other side in the hope that if a lacrymal sac was still present, which there was some reason to doubt, a similar result might be obtained. The great difficulty of the procedure in so small a space was in making sure that he had got hold of the lacrymal sac before using the scissors.

March the 1st, 1918.

Teratoid Tumours of the Nasal Septum.—Dr. A. Brown Kelly showed photographs of two children with congenital appendages of the nasal septum.

Case 1.—Female infant, aged 2 months, presented an outgrowth filling

the right nostril and projecting ¼ in. beyond it. The growth was of fleshy consistence and covered with skin, which was continuous with that of the columella and upper lip. It measured antero-posteriorly 16 mm. and transversely 15 mm. Rhinoscopic examination revealed a rounded band extending a short distance upwards beneath the mucous membrane on the right side of the septum. In the vestibule the band widened out and passed into the columella and halfway down the upper lip. The growth was removed, but inadvertently destroyed before a histological examination was made. The nostrils were now asymmetrical, the right measuring 18 mm. antero-posteriorly, the left 12 mm. The child presented no other malformation.

Case 2.—Male infant, aged 2 months, presented considerable broadening and flattening of the lower part of the nose and a vertical median furrow at the tip. The columella was very broad, and from the upper part of its right edge a rounded process covered with skin projected and occupied the anterior angle of the vestibule, while from its base outside the nostril a smaller one projected upwards and outwards.

A Colony of Actinomyces in the Crypt of a Tonsil.—Mr. W. Douglas Harmer and Dr. A. C. Stevenson.—The patient was a boy, aged 9 years, who had suffered from chronic tonsillitis for six months. There had been a crypt in the left tonsil from which pus was constantly oozing, and the tonsillar lymphatic glands were swollen, the largest being 1 in. in length. The tonsils were enucleated and sent to Dr. A. C. Stevenson, who found no evidence of tubercle, but in one of the tonsils, lying in a deep crypt, there was a colony of actinomyces. Prof. Shattock reported on the section as follows: "A colony of actinomyces. In a Gram-stained preparation a few normal branching filaments occur, and large numbers of coccus-like forms, well stained, which may be taken as spores. The periphery of the colony is regularly fringed with clubs, but these are all finely granular. In a logwood-eosine preparation very little is stained, indicating that the colony is largely degenerate. The crypt in which the colony lies presents no signs of invasion, but the epithelium is here and there desquamating, and at one spot the colony is invested with an exudate containing polymorphs." One week after operation the glands had almost disappeared.

Mr. Harmer added that though he had had a number of tonsils cut, mostly for tubercle, he had not previously had a report of actinomyces. Davis, of Chicago, on the other hand, in examining 130 pairs of tonsils from children, found antinomyces in 30 cases, and quoted articles by others to show that the condition was common.

November the 1st, 1918.

Scarf-pin in the Stomach; Gastroscopy; Expelled by Vomiting.—Mr. C. E. Woakes.—A girl, aged 8 years, accidentally swallowed a scarf-pin which she was sucking, and was admitted three hours later to hospital. A skiagram showed the foreign body in the stomach, lying obliquely below the level of the seventh right rib, with the head towards the umbilicus and the point directed upwards towards the right axilla. An œsophagoscopic tube was passed down to the cardiac orifice, but no foreign body could be seen. Later the tube became blocked by semi-digested cabbage, which rolled up in masses, and for the time prevented further examination. During arrangement for further treatment the pin was vomited up.

In such cases the patient should be fed on some heavy, clinging food like boiled cabbage and suet pudding; an œsophagoscopic tube should then be passed to induce vomiting with less danger than by administering an emetic. The pin measured 53 mm. ($2\frac{1}{16}$ in.) in length, the diameter of the head being 9 mm., and it might have caused very serious symptoms had it passed further down the alimentary canal.

SECTION OF ODONTOLOGY.

June the 10th, 1918.

Tooth Impacted in a Secondary Bronchus of the Left Lung; Removal by Tracheotomy and Lower Bronchoscopy after Two Unsuccessful Attempts by Upper Bronchoscopy.—Sir StClair Thomson.—The patient was a girl, aged 10 years, who was placed under nitrous oxide anæsthesia for the purpose of removing the two first temporary molars. According to the dentist the first tooth did not fall from the forceps while it was in the mouth, but dropped in the napkin tied round the child's chin. On recovery from the anæsthetic the child raised her hands with the napkin above them towards her mouth, making at the same time a strong inspiratory gasp. The dentist never suspected that at this moment the tooth must have re-entered the child's mouth. When the child recovered from the gas she was slightly wheezy. A few days later a catarrhal condition was found, with very little air entering the left lung. An X-ray examination made a month after the visit to the dentist showed the tooth in the depths of the left lung. An attempt to remove the tooth by direct bronchoscopy through the mouth failed, as the narrowness of the bronchiole prevented a wide opening of any nippers, and the polished smooth ivory surface of the tooth gave no hold. A second attempt made eight days later also failed, as the patient suddenly collapsed before the forceps had been introduced, and had to be restored by artificial respiration. A lung abscess developed, and three weeks later the tooth was successfully removed through a tracheotomy wound. The after-history was uneventful.

SECTION OF OPHTHALMOLOGY.

June the 12th, 1918.

Implantation Cyst in a Girl, aged 14 Years.—Mr. A. B. Roxburgh.—The development of the cyst followed the striking of the eye four years ago by a toy aeroplane made of tin. The mother said that an operation was performed immediately, and probably the prolapsed iris was removed. It caused no trouble until three weeks ago, when some pain and pricking were complained of. The mother noticed a dark spot in the eye. The vision had now fallen to $\frac{6}{12}$. The tension was but little raised. Some iris was adherent to the back of the cornea. Beneath the cornea there was a translucent cyst, about $4\frac{1}{2}$ mm. wide, which appeared to be imbedded in the iris. The cyst had recently somewhat encroached on the pupil, and probably accounted for the reduction in vision.

Neuro-retinitis after Chickenpox.—Mr. Leslie Paton.—The patient was a boy, aged 14 years. The patient and two brothers had had varicella in December. The attack was a very severe one. The temperature rose to 103° F., and there was some headache. On the third day of the illness he found that the left eye was blind, and sight had remained very defective in that eye since. He came to hospital on April the 9th, when his condition was as follows: Right vision $\frac{6}{6}$, left vision $\frac{6}{60}$. Pupils act, but left pupil does not maintain contraction well when right eye is shaded, and sometimes shows a condition resembling hippus, but more irregular. Right optic disc normal, left optic disc pale; edges blurred, especially in upper half. No swelling. Retina somewhat obscured, but showing irregular spotting towards macula.

Rhinoscopy and X-ray examination of the accessory sinuses were negative. Visual field showed an irregular central scotoma and some peripheral limitation.

There was a trace of albumin in the urine, but there were no casts. No evidence of organic renal disease.

SECTION OF OTOLOGY.

April the 19th, 1918.

Aural Bacteræmia with Descriptive Cases.—Mr. Richard Lake said that there were two classes of bacteræmia, one in which the inhibitory power of the blood very rapidly destroyed the bacteria, and the second in which the inhibitory action of the blood was for some reason kept in abeyance. The presence of bacteria in the blood was indicated mainly by the height of the temperature. Usually the infecting organism was one of the varieties of streptococcus, more rarely of staphylococcus. The symptoms were mastoid tenderness, high temperature, absence of intracranial lesions, absence of rigors and of delirium, normal cerebrospinal fluid, occasional absence of aural discharge.

Case 1.—Boy, aged 9 years. He was first seen on May the 31st, 1917. He had had earache in the left ear the previous summer after an operation for adenoids, and also an indefinite previous history of earache. The present attack commenced at the end of January. The earache improved and did not recur until May the 25th. When Mr. Lake first saw him his temperature was 100·8° F., and there was tenderness over the whole of the mastoid. The tympanic membrane was covered by desquamated epithelium, but there was no bulging of the drum nor any redness. The evening before operation the temperature was 103° F. Cultures from the blood showed a free growth of staphylococci. The morning and evening temperatures for the first four days after the operation varied from 99·6° F. in the morning to 101·8° F. in the evening. From the fifth day onward he had no rise of temperature and did perfectly well.

Case 2.—A boy, aged 14 years, was taken ill with profuse discharge from the right ear and a temperature of 102·6° F. The high temperature persisted without intermission. There were no cerebral symptoms. There was slight pain at the back of the neck, but no muscular stiffness. Lumbar puncture showed that the cerebro-spinal fluid was clear, and there was no

growth of bacteria in cultures. Blood cultures showed a growth of streptococcus. He was given 10 c.c. of anti-streptococcic serum. He was admitted into the Seamen's Hospital on December the 21st. He had suffered from middle-ear disease for the last eight years. On admission his temperature was 103° F., and his pulse 112, weak and irregular. There was a purulent discharge from the right ear, tenderness in the mastoid region, and clear mentality. He complained of pain in the neck on moving the head. A complete (not radical) mastoid operation was done. In this case the temperature became subnormal on the first day, rising to 101° F. on the second. The pulse-rate remained high. Anti-streptococcic serum was given subcutaneously, and saline solution administered. The boy was slightly delirious. The saline was repeated. On December the 25th there was an abscess under the right clavicle, and a pint of saline was given. By December the 28th the mastoid wound was cleaned. Early in January he had an abscess in the left buttock—a most unusual symptom. No others were present.

Recurrent Herpes of Auricle in a Boy, aged 9 years.—Dr. H. J. Banks-Davis showed a boy who ever since the age of four had had attacks of herpes regularly once a year. He felt ill and feverish and had an aural eczematous discharge. The attack lasted two weeks and affected the right ear alone. Vesicles were present on the back of the auricle as well as on the front.

Acute Mastoiditis in a Boy, aged 8 years; Spontaneous Recovery.—Dr. H. J. Banks-Davis.—The patient was admitted to hospital with bulging forward of the ear and extreme post-aural tenderness, but no aural discharge. The case was therefore regarded as urgent, but on the following day, when permission to operate had been granted, all the symptoms had vanished and there was no recurrence. The hearing was unaffected and the membrane normal. Free drainage through the Eustachian tube must have existed for resolution to occur so rapidly.

Case of Cerebral Abscess; Hernia Cerebri; Avulsion of Abscess Wall; Complete Homolateral Ophthalmoplegia; Recovery.—Mr. W. M. Mollison.—The patient, a boy, aged 12½ years, was admitted to Guy's Hospital on September the 22nd, 1917, suffering from frontal headache and vomiting, with pain and tenderness over the right mastoid process. There was no history of otorrhœa, but the patient had had scarlet fever at the age of two. Four weeks before admission the boy struck his head in a swimming-bath. Though dazed he was able to walk home and had no further symptoms for fourteen days. He was confined to his bed with an illness which his doctor diagnosed as mumps. He had pain in the right ear, was sleepless and restless, had much headache, which made him cry, was somewhat intolerant of light, had no appetite, and lost weight rapidly. For the week previous to admission vomiting, at first once a day, became frequent. He was stated to have had otorrhœa for two days only. On admission the temperature was 97° F. and pulse 68. The boy was drowsy and lay curled up on his right side. He had photophobia and complained of frontal headache. There was foul pus in the right meatus and a perforation in the posterior part of the membrane. The right pupil was larger than the left and optic neuritis was present. Lumbar puncture showed the cerebro-spinal fluid clear but under increased pressure. Tenderness over the mastoid

process was not marked. Cerebral abscess was diagnosed. Operation was performed and about an ounce of foul pus evacuated from a temporo-sphenoidal abscess, and a double rubber drainage-tube was inserted. The boy made good progress till October the 19th, when he again exhibited symptoms of pus retention and a further collection of pus was opened. He improved, but again on November the 3rd a further collection was evacuated. The patient was now very ill and a hernia cerebri developed. Lumbar puncture showed cloudy fluid, but no organisms on cultivation. The temperature rose, and on one occasion reached 105° F. On November the 10th, while dressing the wound, a large part of the hernia was pulled off, and was found to consist largely of the cerebral abscess sac; this was removed entirely. Hypertonic saline was now used as a dressing. Three days later complete ophthalmoplegia was noted to be present on the right side and paralysis of the opposite external rectus.

Mr. Ormond, who saw the case, reported: "Right eye looks straight forward; very slight movement up and down, even less from side to side; no paralysis of levator palpebræ. Pupil is large but reacts sluggishly; optic neuritis in both eyes. Left eye: No movement outwards, pupil active. I think this condition due to interference with the centres for movement in the Rolandic area. ? Œdema. No local lesion will account for an involvement of third, fourth, and sixth nerves, omitting the levator palpebræ and internal branch of the third."

The boy made a slow recovery, and was discharged on December the 29th. The movements of the eyes gradually returned to normal.

Concentric Narrowing of Each Meatus following Scarlet Fever at the Age of Five.—Mr. Herbert Tilley.—A woman, aged 47 years, came to hospital for "deafness" and "noises in the head," the symptoms dating from an attack of scarlet fever at the age of five. On examination each meatus was found to be obstructed by a diaphragm with a central perforation of a calibre which would admit the head of an ordinary lead pencil. The edges of the perforations were clear-cut, white, and rather resistant. The stenoses thus caused were rather to the outer side of the junction of the cartilaginous and bony meatus. In each meatus there was some purulent discharge. After clearing the passages and inflating with a catheter the hearing improved and the tinnitus ceased for two days.

November the 15th, 1918.

Acute Osteomyelitis of Right Temporal Bone in a Boy; Operations; Recovery.—Mr. Herbert Tilley.—The patient was admitted to University College Hospital for acute suppurative otorrhœa (right) of some six weeks' duration, associated with pain, pyrexia, sleeplessness and malaise. The mastoid antrum and adjoining cells were explored in the ordinary way. The roofs of the antrum and tympanum were found to have been destroyed by disease; the dura was replaced by a mass of granulation tissue, which permitted the tip of the little finger to be passed into the adjacent region of the temporo-sphenoidal lobe. The wound was left wide open and dressings applied. During the following three or four weeks the soft tissues in the temporo-mastoid regions became swollen and œdematous.

At the second operation the squamous and mastoid portions of the temporal bone were freely exposed, and were found to be so softened by inflammation that large portions could be scraped away with a "sharp spoon" or removed with forceps. The dura mater was so thickened and unlike the normal structure that it was difficult to recognise it or to differentiate it from surrounding infiltrated tissues. During the subsequent and long convalescence herniæ cerebri made their appearance on three occasions in the original wound over the mastoid, and on each occasion they were removed by division of the stalk, which seemed to depend from the brain in the neighbourhood of the defective roofs of the antrum and tympanum.

After a long convalescence the patient was now practically well, except that a small sequestrum appeared to be making its way to the external opening of a fistula in the lower part of the post-aural wound. In the experience of the exhibitor acute spreading osteomyelitis of the temporal bone was rare, and he believed that most of the recorded cases had proved fatal. It was possible that the very wide removal of inflamed bone in the present case accounted for the successful issue.

Case of Double Facial Paralysis due to Bilateral Tuberculous Mastoiditis.—Mr. W. M. Mollison.—A child, aged 13 months, was admitted to Guy's Hospital on October the 12th, 1918. Otorrhœa began at the age of six months, and had been considerable ever since. A swelling was noticed over the left mastoid process the day before admission; the change in the face was only noticed four days previously. From both meatuses there was profuse foul otorrhœa; there was considerable swelling over the left mastoid process, and the skin over this was red. The face was without creases, and crying produced no change. At the operation the mastoid process was found to be soft and necrotic, and a series of sequestra were easily scraped out with a "sharp spoon": the dura mater of the middle fossa was exposed and covered with granulations. Six days later the right mastoid was operated on and a similar condition found. The child made a good recovery.

Case of Acute Mastoiditis followed by Thrombosis of the Internal Jugular Vein as far as the Clavicle; Recovery.—Mr. W. M. Mollison.—A girl, aged 8 years, was operated on for acute mastoiditis. The temperature, which had been 103·6° F., fell to normal in two days. On the third day after operation it rose to 102° F., and for some days fluctuated between 100° and 102·5° F.; till on the eleventh day the patient had a rigor.

Operation was performed. On opening the wound pus was found about the lower part of the lateral sinus. The sinus was opened and found thrombosed. The jugular vein was exposed in the neck and found to be solid with clot as far down as the clavicle. A piece of vein was excised. There was never any stiffness of the neck, and two days after the operation the child sat up in bed. Before recovery she had several rises in temperature. She was treated once by injection of 1 c.c. of collosol manganese, but it was difficult to say whether the subsequent fall of temperature was a result of the treatment or merely a coincidence.

Abstracts from Current Literature.

Feeding of Infants and Children.

Some aspects of infant feeding (*'Lancet,'* 1918, II, *p.* 482).—**J. C. Drummond.**—Fats, proteins and carbohydrates are insufficient without vitamines, known as (1) fat-soluble A, (2) water-soluble B or anti-neuritic factor, (3) water-soluble C or anti-scorbutic factor. (1) is present in most green leaves and cannot be synthesised by the animal organism. Young animals deprived of (1) show no ill-effects for some time as they have reserve supplies. Eventually, however, growth ceases, and early death from acute infectious diseases of the lungs results. Deprivation of (2) results in absolute cessation of growth. It is derived from cereals and yeast and cannot be synthesised. (3) Occurs also in fruits and fresh vegetables. (1) and (2) are stable to high temperature but not (3). (1) and (2) are destroyed by cold. All are stable to acids. Experiments were made with pregnant rats deprived of fat-soluble A. Four of the eight offspring were allowed to live. Two succumbed within thirty-one days to pyogenic infections. On restoration of diet, recovery amongst the others ensued. It is interesting to note that fat-soluble A is wanting in "Marylebone Cream"—a substance consisting of linseed oil, acacia, almonds and saccharin. In dried milk a certain amount of destruction of water-soluble factors may ensue. Unsweetened condensed milk, when adequately diluted, is satisfactory. CHRISTOPHER ROLLESTON.

Practical infant feeding (*'New York State Journ. Med.,'* 1918, XVIII, *p.* 6) —**J. R. Johnson** defines the term "practical infant feeding" as one that is sufficiently scientific to meet the needs of the growing infant, yet so simple and easy of combination that the intelligent mother can understand. He reviews various methods of infant feeding. He uses whole milk, diluting it with water in accordance with the digestive capacity of the infant, and adds sugar. In the infant, as in the adult, the definite amount of food he needs for nutrition is best expressed in calories. An ounce of whole milk is equivalent to 20 calories. An ounce of any kind of sugar is equal to 120 calories. In estimating the caloric needs of the infant it should be remembered that the average child under four or five months requires from 45 to 55 calories per pound of body-weight. The same child, if very fat, needs only 40 calories, whereas, if the same child is emaciated, 60 to 65 calories may be needed. In preparing the food for 24 hours first determine the caloric needs of the child, judged by its present physical condition and history of digestion. Knowing its weight in pounds, multiply this by the calories. Subtract the sugar calories from the whole number needed and the difference is milk calories, which, if divided by 20, will give the number of ounces. Add water to make the full amount required. For the growth and nutrition of the infant we need a mixture of fats 3 to 4 per cent., sugar 6 to 7 per cent., proteids 1 to 2 per cent., mineral salts and water, but such an artificial food is not well tolerated except by those of the strongest digestion. It would be impracticable to attempt such a formula in the early weeks of life. As a rule no infant should be given merely the minimum of food, even if it appears healthy. If the physiological reactions are normal it is better to over- than under-feed. The digestive capacity of each infant

must be determined by a close study of the individual child, its digestive history, weight, stools, etc. J. Allan.

Breast-feeding and faradisation of mammary glands (*'Lancet,'* 1918, II, *p.* 356).—**E. S. Chester** stimulates the secretion of the glands by applying a galvanic current for twenty minutes two or three times a week by means of two zinc collar-shaped electrodes, fixed in place by an elastic bandage. Out of 10 cases, 5 had eight to ten treatments and 5 were sufficiently improved by four to seven treatments. In every case the child improved in health, the gain in weight being three and a half to five ounces a week. Christopher Rolleston.

The functional capacity of the mammary gland (*'La Pediatria,'* 1918, XXVI, *p* 71).—**A. Borrino** describes several cases in which difficulties connected with lactation were successfully overcome. These include three cases where the commencement of suckling was delayed, five of suckling from one breast only, and one of hepatic lithiasis which developed with every pregnancy. They show that the function of the gland may be initiated a long time after parturition (25, 27 and 45 days), and may be re-established with good results, either by mixed feeding, or exclusively by breast-feeding, even after a suspension of several days. Disease limited to one breast does not prevent suckling from the other. Maternal feeding from a single breast may give excellent results; there is almost always enough milk for mixed feeding, and may be enough, at least for several months, for exclusive maternal feeding. Even in cases of definite illness maternal feeding is possible, provided it is supervised by the doctor. The great value of maternal feeding in the normal development of the infant, especially in the early months, calls for medical assistance in all cases of difficulty arising at the outset, since too many cases where breast-feeding has been abandoned are due to unpreparedness on the part of the mothers and the absence of medical advice. Vincent Dickinson.

The functional capacity of the mammary gland (*'La Pediatria,'* 1918, XXVI, *p.* 220). —**A. Borrino** completes her observations on this subject, dealing with the question of the reasons why mothers do not nurse their offspring. She examined 1110 children at the obstetric clinic at Turin born during the years 1913–15. Of these, 1030 (*i. e.* 93 per cent.) were nursed by the mother, of which 80 (7 per cent.) were bottle-fed after two or three days. In 112 cases (10 per cent.), the secretion of milk being insufficient at the outset, mixed feeding was resorted to. Among the most frequent causes which led to mixed feeding, the principal was in 50 per cent. of the cases deficient development of the child, next came inadequate secretion in about 15 per cent., then fissures of the nipple in about 10 per cent. The causes necessitating artificial feeding were chiefly neglect of the mother in about 40 per cent., then illness in about 30 per cent. The initial capacity of the mother to suckle was almost universal, but in practice, among infants brought to the baby clinic, nursing was somewhat lower, only half the infants being exclusively at the breast, while about one-quarter soon had an irregular mixed feeding, and another quarter was entirely bottle-fed. Both mixed and artificial feeding were almost always begun during the early weeks, and in the majority of cases, on the mother's sole initiative for causes which did not justify the cessation of breast-feeding, and which medical advice would have prevented. The actual conditions of infant

feeding and consequent high mortality in the early months show that prophylactic help for the infant should begin during the first few weeks, which are decisive for establishing a normal lacteal secretion and for the growth of the child. VINCENT DICKINSON.

The baby that cannot take milk (*'New York Journ. State Med.,'* 1918, XVIII, *p.* 141).—**T. W. Clarke** describes five types of infants who are taken off cow's milk on the ground that they cannot digest it. The first class includes those babies which have not been able to take cows' milk because the modification has been unsuited to the individual child. In the second group are those in which milk has not agreed because it has been given in an incorrect quantity or improper dilution. The third class comprises the babies who have not been able to take milk because the milk given was not fit for a baby to drink. A fourth class is that in which the infant exhibits a true milk intolerance. Lastly, there is a group of babies with some actual disease or developmental abnormality. Illustrative cases in each group are given. The author believes that, except in the case of infants with some constitutional malady as a result of which no food is of value, practically every baby can be made to take and digest cow's milk, provided one has a clean, pure milk available, and one uses patience, intelligence and courage in ordering the modification and administration thereof. J. ALLAN.

Nervous unrest in the infant as a cause of the failure of breast-feeding (*'Lancet,'* 1917, II, *p.* 345).—**H. C. Cameron** calls attention to a defect in the child which is not uncommonly a cause of failure to nurse successfully—the inhibition of the sucking reflex by the infants, nervous unrest and excessive emotional display. In some infants, generally of pronounced neurotic inheritance, the sudden change of environment which accompanies birth is capable of arousing a veritable nerve-storm. New sensations of pressure and of heat and cold which stream into their consciousness produce a paroxysm of unrest. The infant starts convulsively at the gentlest touch, at a bright light, or a loud sound. Sleep is resolutely refused, and wild hysterical crying may last four hours at a time. Too often the nervous unrest inhibits the sucking reflex. Crying, spluttering, and gulping, the child mouths and bites at the nipple without fastening on, or, throwing back his head, continues to squirm and struggle without taking any notice of the proffered breast. Hunger adds to the unrest and unrest to the hunger until everyone is tired out, the attempt at nursing is abandoned, and artificial feeding is begun. A great deal can be done by simple measures, by insisting upon a half-darkened room, a warm, soft bed, and absolute quiet. The infant should be handled as little as possible, and when lifted the movement should be steady and gentle. Too strict adherence to a rigid scheme and time-table for feeding should not be enforced. Digestion is inhibited by excessive emotional display in infants as in adults. With such children the only chance of success is to be active in seizing every reasonable opportunity that presents itself, having regard to rational time limits, to get the child to the breast while he is still asleep. If very gently the slumbering child can be brought to the breast before he wakes with that convulsive start which is immediately followed by a storm of crying, if while he still lies between sleeping and waking the nipple can be gently inserted into his mouth, the sucking reflex comes to its own again, and not only is the breast drained steadily and well, but the subsequent process of digestion is much more likely to be undisturbed. The ordinary conditions of nursing routine must be

reversed. Till the nervous system becomes quieter we must feed the baby, not when he wakes, but when he sleeps. If opportunities for feeding the child are not sufficient—that is to say, if it is impossible, with all care to avoid stimulations, to find sufficient occasions when, with the child asleep, a meal is even approximately due—then it is not a difficult matter to increase their number. For this purpose chloral hydrate is peculiarly suitable. Its effect in quietening the child and producing sufficient somnolence to allow the sucking reflex full play is much more marked, more certain, and more immediate than that of potassium bromide. It should be given twenty minutes before the intended meal-time. One grain is usually enough for a very young baby, dissolved in a teaspoonful of water with a little syrup of orange. It is sometimes necessary to adopt this manœuvre before each of five or six meals in the day, but as a rule three grains in the 24 hours will be sufficient, because other opportunities of feeding the child after sound sleep, and, if possible, without rousing him, will present themselves. The nervous dyspepsia of infants is controlled in the same way more efficiently by chloral than by any other drug. J. Allan.

Observations on artificial feeding (*'Riv. di Clin. Pediat.,'* 1917, xv, *p.* 57).—**M. Flamini,** commenting on the disastrous results seen with feeding the infants in the orphan asylums in Italy on cow's milk in comparison with the better results obtained in America and England, attributes them to impure milk and neglect of prescribed rules. He obtained better results by Rotch's system and by the addition of small quantities of malted farinaceous foods, but nearly always succeeded in saving babies who were obviously going downhill by alternate feeding by a wet-nurse. Not infrequently even one, or two, breast-feeds a day were sufficient. He attributes the bad results from artificial feeding alone to (1) deficient nutrition of the tissues, and (2) toxic poisoning. Vincent Dickinson.

Observations on casein in the fæces of healthy and dyspeptic infants (*'La Pediatria,'* 1918, xxvi, *p.* 270).—**L. Maccone** finds that the serum of rabbits injected with bovine casein gave no reaction with human casein. The white sediment of fæces of breast-fed infants gave no reaction with serum which precipitated cow casein. The reaction, however, was positive with the sediment of dyspeptic infants fed on cow's milk and negative in healthy infants. The presence of casein in the fæcal sediment of dyspeptic infants fed on cow's milk is thus demonstrated.

Vincent Dickinson.

Dried milk in infant feeding (*'New York State Journ. Med.,'* 1918, xviii, *p.* 278).—**R. H. Dennett** has found that dried milk is better tolerated by those infants who have already received a food injury than raw milk or boiled milk mixtures. In all cases where there was no organic disturbance, such as pyloric stenosis, tuberculosis, syphilis, etc., the results have been excellent. Vomiting has often been controlled within twenty-four hours, intestinal indigestion immediately overcome, and increase in weight begun at once. The food must be made fresh at each feeding by dissolving the proper quantity of the dry powder in the proper quantity of hot water. In order to furnish fifty calories per pound per day give three tablespoonfuls levelled with a knife of dried milk for every pound of the body-weight, since a tablespoonful has sixteen calories. Only very poorly nourished infants need as many as fifty calories per pound of dried milk. Well-nourished or

fat babies gain progressively on forty calories per pound per day (or even less). When beginning dried milk with an infant that has already had marked digestive disturbances or a food injury, it is advisable to give much less than the infant actually needs and increase the tolerance, just as with any other food, although it is noticeable that the tolerance is much more quickly increased for dried milk than it is for fresh cow's milk or sugar. Dried milk is not a panacea in infant feeding; it is only one more weapon with which to combat digestive disturbances, one more resource at hand to use with infants of feeble digestion, and to tide over a critical period in selected cases. J. Allan.

The effect of low temperatures on the chemico-physical properties of milk (*'La Pediatria,'* 1916, xxiv, *p.* 464).—**G. Quagliarello** experimented by reducing the temperature of milk thirty degrees for three hours. He found that low temperatures not only lowered the superficial tension, but also to a lesser degree increased the viscosity of freshly drawn milk. This action took place in human as well as cows', goats' and asses' milk; the intensity of it varied, however, in different kinds, due probably to the proportion of the lower triglycerides in the globules. Homogenised milk always possesses a lower superficial tension and higher viscosity than ordinary milk, and low temperatures had no further action upon it.
Vincent Dickinson.

A hitherto undescribed sign of hypo-nutrition during the first weeks of life (*'La Pediatria,'* 1918, xxvi, *p.* 7).—**A. Gismondi** draws attention to the disappearance of the lateral fulness of the abdomen as one of the earliest signs of insufficient alimentation in the breast-fed infant. This sign is of value in the absence of regular weight measurement, or when the physician is called upon at a first consultation to give a definite opinion as to the conditions of fitness for suckling on the part of the mother or nurse. In the first weeks of life the normal infant presents a globose abdomen, having at the inferior lateral parts two slight projections due probably to hypotonus of the abdominal walls, which yield somewhat to the pressure exercised by the intestinal folds when full; these projections give to the abdomen of an infant in good condition of nutrition a somewhat frog-like aspect. This particular conformation, however, disappears in conditions of hypo-alimentation owing to the empty state of the bowels. The physiological disappearance of this phenomenon occurs gradually about the second or third month, *i. e.* when the increased tone of the abdominal musculature and the deposit of fat eliminate the conditions concerned in its production. Its early disappearance depends on an empty state of the intestines due to (1) inadequate sucking on the part of the infant from congenital malformation of the buccal cavity, stomatitis, etc.; (2) difficult passage of nourishment from the stomach to intestines, from pylorospasm, pyloric stenosis, or habitual vomiting; and (3) extreme rapidity of the passage of milk through the digestive tract from diarrhœa, or in the absence of these to hypo-alimentation. Vincent Dickinson.

The banana as a food for children (*'Amer. Journ. Dis. Child.,'* 1917, xiv, *p.* 379).—**M. C. Pease** and **A. R. Rose**.—The chief food constituents of the banana are the carbohydrates, which amount to about 22 per cent. In the green fruit they are in the form of a starch, which on ripening is converted first into sucrose and finally into invert sugar. The proteins amount to less

than 1 per cent., and their nature is unknown. The fat and fibre are negligible. The ash is important both in the amount and character of its constituents. When fully ripe or well cooked the banana is a good fruit for children, but it should never be given them under-ripe and uncooked. The writers did not find any positive evidence that the banana influenced bowel movements. J. D. Rolleston.

Some analyses of vegetables showing the effect of the method of cooking (*'Amer Journ. Dis. Child.,'* 1917, xiv, *p.* 34).—**A. M. Courtney, H. L. Fales** and **F. H. Bartlett.**—Infants fed too long on an exclusive milk diet show anæmia, late closure of the fontanelle, delay in walking, and general lack of activity. The needed iron can best be supplied by green vegetables, which have been given as young as six or seven months to children in the Babies' Hospital, New York. The writers found that a large proportion of the mineral contents of most vegetables is lost in the water used in cooking by boiling. A very great saving in mineral contents could be effected by the method of steaming. Spinach proved to be the best vegetable to provide a salt addition to the diet.

J. D. Rolleston.

The use of large quantities of fruit-juice for atrophic infants (*'Practitioner,'* 1916, xcvii, *p.* 472).—**H. B. Gladstone.**—This is a preliminary report from the Sydenham Milk Depôt. Excellent results were obtained from fruit-juice composed of two parts of orange-juice and one of apple. Permanently good results did not occur unless a properly digestible milk diet was added quickly, as if the juice was continued more than a couple of days the child lost heat and collapse set in. It can be given to the extent of a pint a day. F. R. B. Atkinson.

The relation of food idiosyncrasies to the diseases of childhood (*'Boston Med. and Surg. Journ.,'* 1918, clxxix, *p.* 285).—**F. B. Talbot.**—In infancy and childhood, asthma, recurrent bronchitis, eczema and gastro-intestinal indigestion are the diseases which are most commonly due to foods. Talbot records cases in which the cause of these diseases was proved to be anaphylaxis, but emphasises the fact that this explanation cannot be given for all cases of these diseases. The commonest example of anaphylaxis is idiosyncrasy to eggs, which is characterised by violent vomiting, sometimes diarrhœa, whenever the patient takes eggs, especially when raw. Sensitisation to cow's milk is not uncommon, and is shown by vomiting, even when the milk is given in such minute doses as ten drops. As the child grows older, anaphylaxis due to foods is less commonly seen, and is succeeded by the inspired asthmas and hay-fever (*cf.* British Journal of Children's Diseases, 1916, xiii, *p.* 216). J. D. Rolleston.

Nervous and Mental Diseases.

The facial phenomenon in some infectious diseases (*'Münch. med. Woch.,'* 1918, lxv, *p.* 938).—**M. Gioseffi** alludes to Gott's recent paper on the facial phenomenon as an early sign of post-diphtheritic paralysis (*vide* British Journal of Children's Diseases, 1918, xv, *p.* 229), and records his own observations at the Trieste Fever Hospital. The sign was present in 38 per cent. of the diphtheria cases, in 41 per cent. of the scarlet fever cases, in 20 per cent. of the whooping-cough cases, and in 61 per cent.

of the enteric fever cases. Gioseffi does not regard the sign as evidence of latent tetany, but as indicating increased reflex excitability which is normally found in infants during the development of an infective process.

J. D. Rolleston.

Transient painful paralysis in infants (*'La Pediatria,'* 1917, xxv, *p.*517).—**V. Conterno** draws attention to a morbid condition which attacks infants in the first year of life, and shows itself by a total paralysis of one arm, of sudden origin and intensely painful, following violent traction on the limb. The absolute impossibility of movement in spite of the absence of noticeable anatomical lesions, the pendulous position of the arm with the hand pronated, the pain and crying during passive movement, form a characteristic picture. The gradual and rapid return of movement, simultaneous disappearance of painful symptoms, and complete restoration of function after a few days in the majority of cases spontaneously and without treatment demonstrate the benign nature of the affection and the temporary nature of the causal anatomical lesion, which is a traumatism of the articulation of the head of the radius. Vincent Dickinson.

Amyotonia congenita combined with chronic trophœdema (*'Neurol. Centralbl.,'* 1917, xxxvi, *p.* 443).—**H. Higier.**—The patient was a male infant, aged 12 weeks. The mother was of a very nervous disposition, but otherwise the parents were healthy. The child presented an almost complete flaccid tetraplegia; the tendon reflexes were absent, and the cutaneous reflexes could be elicited with difficulty. The abdominal muscles were also affected. The child also presented chronic trophœdema of the legs and gluteal region. Contrary to the general rule, the distal extremities were almost completely spared. There was no evidence of disturbance of internal secretion, such as myxœdema, osseous anomalies, genital aplasia or idiocy. Higier regards the amyotonia and trophœdema as co-ordinated morbid processes, the anatomical substratum of which was to be found in the anterior and lateral cornua of the spinal grey matter.

J. D. Rolleston.

Influenzal meningitis (*'Lancet,'* 1917, ii, *p.* 384).—**K. S. Bhat** reports a case in a female infant, aged 14 months. A film made from the cerebro-spinal fluid for differential count of leucocytes showed typical influenza bacilli in large numbers. Subsequently on another lumbar puncture a culture taken on blood-agar confirmed this. Post mortem, films from pus on surface of brain and from ventricular fluid demonstrated typical influenza bacilli. About half an hour before death hyperpyrexia set in, the temperature reaching 107·6° F. J. Allan.

Meningitis associated with Gram-positive bacilli of diphtheroid type (*'Med. Journ. Austral.,'* 1917, i, *p.* 115).—**E. Atkinson** describes five cases, in male children aged 2, 4 and 2 years, and female aged 3 years and 9 months and 9 years. The bacilli in two cases were of the Klebs-Loeffler type, and in three of the Hoffmann type. Four of the children died.

F. R. B. Atkinson.

A case of cerebro-spinal meningitis from streptothrix (*'La Pediatria,'* 1918, xxvi, *p.* 11).—**R. K. Marinucci** reports the case of a child, aged 13 months, who was seized with convulsions, opisthotonos and

strabismus during convalescence from an attack of whooping-cough. On admission, dilated and immobile pupils, flexion of limbs with hypertonic muscles, slight nuchal rigidity, exaggerated patellar reflex, Kernig and Brudzinski positive, *tache cérébrale*. Lumbar puncture gave 40 c.c. turbid fluid under pressure, which rapidly formed white filamentous clots which sank to the bottom. Microscopically, besides excess of polynuclears there were many fine micro-organisms, generally arranged in chains, stained by aniline dyes, but neither Gram-positive nor acid-fast. They developed in glycerine broth, glycerine agar and blood-agar. Emulsions proved fatal to a guinea-pig and a rat ten days after peritoneal injection. No autopsy could be obtained. VINCENT DICKINSON.

Basal lepto-meningitis resembling botulism (*'Brit. Med. Journ.,'* 1918, I, *p.* 639).—**S. T. Steward** reports a case in a girl, aged 5 years. The signs and symptoms which were thought to point to botulism were vomiting, transient facial palsy, transient ptosis, absence of spinal paralyses, drowsiness, absence of temperature, and constipation, with dryness of the mouth and nose. The case terminated fatally, and at the post-mortem examination the pia mater showed general hyperæmia, whilst over the base of the brain, especially over the optic chiasma, pons, and front part of the medulla, the meninges were swollen, œdematous, and jelly-like. There was no definite pus, though between some of the convolutions there seemed to be a little turbid fluid. On section the brain showed no gross naked-eye changes. The other organs were healthy. J. ALLAN.

The diagnostic value of Boveri's reaction in the cerebro-spinal fluid (*'La Pediatria,'* 1917, XXV, *pp.* 577 and 581).—**L. Chiaravalloti** and **R. Vaglio.**—In 1914 Boveri drew attention to this reaction, which takes place on adding 1 c.c. of cerebro-spinal fluid to an equal quantity of 1 per cent. solution of permanganate of potash, the violet colour of which persists for a longer or shorter time according as the fluid is normal or pathological, the reaction being considered positive if decolorisation takes place within 2 minutes, average in 3–4 minutes, and weak if within 10 minutes; negative if taking place later. Chiaravalloti found that the reaction was of great practical value, and easy of application at the bedside. The intensity and rapidity of the reaction are clearly in relation to the quantity of albumin present in the fluid, the least time of reaction—a few seconds—occurring when it contains 3 per 1000 albumin. Increase in the corpuscular elements seems to accelerate and intensify the reaction, not so much *per se* as from the increase of nucleo-globulin which accompanies it. VINCENT DICKINSON.

Juvenile multiple sclerosis (*'El Siglo Medico,'* 1916, LXIII, *p.* 833).—**G. R. Lafora** records the case of a boy, aged 15 years, whose symptoms began at the age of eleven with diminution in vision. Later he had difficulty in walking. Many symptoms appeared and disappeared during the next years. When seen in 1916 there were: General hypertonia with slight contractures of the legs; reflexes exaggerated in all limbs. Bilateral Babinski; abdominal reflexes absent, scrotal reflex diminished. Intention tremors of both hands; slight nystagmus; scanning speech. Sluggish pupils; tremor of tongue. Sensation diminished. The temporal halves of both discs were pale. Difficulty in defæcation and micturition. An apoplectiform seizure followed by convulsions ensued, and the patient died of a

terminal broncho-pneumonia. In 1915 a blood examination had given a positive Wassermann. The spinal fluid could not be obtained on account of the convulsions. The diagnosis is discussed. No autopsy could be made. M. D. Eder.

Disseminated sclerosis in a boy, aged 15 years (*'Arch. de Méd. des Enf.,'* 1918, xxi, *p.* 201).—**P. Gautier** and **C. Saloz.**—At the age of 10 years the boy, who had hitherto been healthy, suddenly developed disturbance of speech, paralysis of the right and then of the left arm, and finally of the right lower limb. The paralysis of the right leg persisted, but the other symptoms disappeared in a few days. Four years later, during a walk, the boy suddenly developed great weakness in the legs, showed a tendency to fall to the right, and in the following days spastic paraplegia with loss of sensibility in the lower limbs and incontinence of urine and fæces. At the present time the child shows generalised spasticity with slight contractures in the lower limbs only, exaggerated tendon reflexes, ankle clonus and Babinski's sign, intention tremor, nystagmus and ocular palsies which dated from birth. The fundi are normal. There is no scanning speech, the cremasteric and abdominal reflexes are abolished, and there is no sensory change except a certain degree of hypæsthesia on the lower right half of the body. J. D. Rolleston.

A clinical and anatomical report of a case of Friedreich's ataxia (*'Med. Journ. Austral.,'* 1917, i, *p.* 135).—**W. F. Litchfield, O. Latham,** and **A. W. Campbell.**—The case concerns a girl, aged 7 years, who died of typhoid fever. One brother seems to have died of the same disease and one other brother suffers from ataxia. Post-mortem examination revealed an old-standing disease of the posterior columns from the lower lumbar region upwards, which contained no healthy fibres except the posterior root-zone and the cornu-commissural zone, and an acute process affecting the lateral and anterior columns, consisting of diseased fibres scattered here and there similar to what is met with in disseminated sclerosis. Campbell considers with Williamson that the parts degenerate because the blood-supply is weak in that segment of the cord. F. R. B. Atkinson.

Analysis of seven cases of Friedreich's ataxy (*'New York Med. Journ.,'* 1918, cvii, *p.* 204).—**M. Osnato.**—The first case was in a girl, whose first symptoms of scoliosis appeared at the age of 13 years. It was the only case in the family. The second case was in a boy whose parents were both markedly alcoholic, and began at the age of 9 years with choreiform movements. The next two cases were in a boy and his sister; both began at the age of 12 years with choreiform movements. In the boy there was no evidence of involvement of the pyramidal tracts, the knee-jerk being diminished and the plantar response flexor in type. There was loss of sense of position and of the temperature, vibration and tactile sensations. In the girl X-ray examination showed rarefying osteitis in the long bones of the legs and in many bones of the feet. A woman, aged 25 years, had been affected for seventeen years, and had not walked for fifteen years. The trouble began by ataxy of the legs, and the arms had been affected for twelve years only. There was marked atrophy of all the muscles with contractures. The last case was a man, aged 26 years, whose illness began sixteen years previously with weakness of the left leg; then atrophy and weakness began in both hands, and both feet became involved and extended to the leg muscles.

Ataxy of the arms followed. Trophic ulcers frequently appeared on the feet, but healed easily. In only two of these cases was there any familial history. In four cases there was a history of traumatism, which appeared to be the cause of the symptoms. The nystagmus was an expression of the weakness and loss of muscle-sense in the eye muscles; it was peculiar and not rhythmical or constant, except in two cases, both of which showed optic atrophy. The age of onset was between the ages of 8 and 12 years. The author defines the disease as one not limited to any particular tract or set of tracts in the cord, occurring commonly after an injury. Atrophy is a late feature, and so are the signs of pyramidal tract disease, viz. ataxy and muscular weakness followed by Babinski's extensor or plantar reflex.

J. Porter Parkinson.

Epidemic stupor in children (*'Lancet,'* 1918, i, *p.* 636).—**F. E. Batten** and **G. F. Still** direct attention to a series of cases in children, aged 11, 7, 4 years and 3½ months respectively, exhibiting an unusual condition of stupor. The children were brought to hospital in a stuporose condition, and lay on their backs with the eyes closed, the legs extended, the arms sometimes flexed. Although apparently unconscious, the children can be roused. Physical examination is negative. The cerebro-spinal fluid on lumbar puncture flows out under normal pressure and shows no cytological or chemical change. The Wassermann reaction of the cerebro-spinal fluid and blood is negative. The blood shows no change, no malaria parasite, trypanosome or other organisms being present; blood culture is negative. The fæces contain no parasitic ova and the urine is normal. The authors think that the disease is not due to any inflammatory disease of the meninges, for the cerebro-spinal fluid is normal. It is not essentially dependent upon the ingestion of sausage, ham, or tinned foods, or any other supposed source of so-called botulism, for it has occurred in an exclusively breast-fed infant. If it is due to a bacterial cause the infection can be conveyed by means other than food. **J. A. Smith** and **F. Parkes Weber** (*'Lancet,'* 1918, i, *p.* 737) report cases in girls aged 14 and 2½ years respectively.

J. Allan.

Some remarks on the occurrence of the "mysterious disease" in Southern Queensland (*'Med. Journ. Austral.,'* 1917, ii, *p.* 270).—**A. G. Anderson.**—Twelve cases occurred under ten years of age; 8 recovered and 4 died. The onset was sudden, with headache, fever, vomiting, and convulsions. Neck-rigidity was a constant sign. No meningococci were found in the 5 cases of cerebro-spinal fluid examined.

F. R. B. Atkinson.

Acute encephalitis of unknown origin (*'Med. Journ. Austral.,'* 1917, ii, p. 352).—**T. H. R. Mathewson** and **O. Latham** record a series of 17 cases, showing a sudden onset with convulsions, with intervals of semi-consciousness for hours or even days, ending in stupor and deep unconsciousness. In some cases there was head-retraction, and in two opisthotonos, The limbs were spastic at the commencement and then became flaccid. Rise of temperature was present in all cases. The mortality was 65 per cent. The ages varied from 1 year 9 months to 9 years. Fourteen cases were females and 3 males. Of the 6 cases convalescing only 1 appears to be making a good recovery. There was some increase of pressure on lumbar puncture. No organism could be grown from the fluids. Microscopical

examination of the brain and cervical part of the cord pointed rather to a poliomyelitis and encephalitis due to an infective agent of some kind, chiefly localised in the adventitial sheaths and inner layers of the pia arachnoid, brought there by the blood-stream. F. R. B. Atkinson.

Observations on blood-counts and cerebro-spinal fluid in obscure epidemic encephalitis (*'Lancet,'* 1918, II, *p.* 322).—**S. K. Vaidya** states that some authors have found a marked leucocytosis, others a leukopænia. In the cerebro-spinal fluid there is excess of protein and of mononuclear cells. Twenty cases were investigated, eight of them being cases of children under ten. The average count in the children was 9000 cells per cubic millimetre of blood, the normal being 8000. A small leucocytosis, but no leukopænia, was therefore found. There was only a slight tendency to polymorphonuclear increase. In the cerebro-spinal fluid there was only a small excess of protein and lymphocytes. Owing to the small deviation from the normal in the blood and cerebro-spinal fluid it is probable that the virus of acute encephalitis is not the same as that of poliomyelitis.

Christopher Rolleston.

Mesencephalic syndrome and pathological sleep (*'Riv. di Clin. Pediat.,'* 1917, xv, *p.* 505).—**C. Francioni** describes the case of a child, aged 10 months, born naturally and breast fed. History of fall with formation of hæmatoma of scalp when aged 5 months. Healthy till 8 months, when mother noticed contraction of eyelid during laughter, with traction of angle of mouth to the right, and turning of head to right shoulder. The right eyelid eventually completely covered the eye. These phenomena then spread to the other side. Towards the ninth month the child began to become somnolent, and after a fortnight this somnolence became very marked and transformed into a deep and almost continuous sleep, the child only waking for a few minutes to take food, and requiring a good deal of rousing for this purpose. There were no general convulsions, vomiting or fever. Wassermann negative; no tuberculosis in family. Ophthalmoscopic examination negative; marked oculo-cardiac reflex. Muscles hypotonic; reflexes normal; no clonus. Death gradually from entero-colitis after a month. At the level of the cerebral peduncles was a mass of tuberculous material the size of a large nut, which had developed in the nerve substance of the mesencephalon, which it had in great measure destroyed. The left peduncle was entirely interrupted, while the right was reduced to a thin lamina 1 mm. thick. The lamina quadrigemina was in like manner crushed, and reduced to a thin layer. The central part of the peduncular region, including the aqueduct of Sylvius, had disappeared, and was occupied by caseous matter. The upper cerebellar peduncles were also invaded, especially the right. The cerebellum and pons, however, seemed normal. There was a large tuberculous nodule in the posterior part of the left hemisphere, and the optic thalamus was invaded by a caseous mass which bulged into the third ventricle. Vincent Dickinson.

Diataxia cerebralis infantilis (*'Amer. Journ. Med. Sci.,'* 1918, CLV, *p.* 503).—**J. R. Hunt.**—This is a special form of cerebral birth-palsy which is characterised by a generalised disturbance of co-ordination without evidence of paralysis, spasticity, epilepsy or serious mental defect. The sensibility, both special and general, is apparently unaffected. The condition is believed to be due to a bilateral vascular lesion in the parietal region, viz. hæmor-

rhage and softening in the distribution of the parietal veins, resulting from an injury at birth. The disturbance of co-ordination affects the speech, gait and station and use of the extremities, and is a pure ataxic disturbance. It differs from cerebellar ataxia by the character of the motor disorder, its persistence in the recumbent posture and the absence of nystagmus. It may be regarded as the sensory equivalent of the spastic type of Little's disease, and is not infrequently associated with it, constituting a diataxic diplegia. As in Little's disease, there is always a tendency to improvement, although the development of motility is always seriously retarded. Three illustrative cases in children aged 6, 11 and 12 years are recorded. J. D. Rolleston.

Some aspects of internal hydrocephalus (*'New York State Journ. Med.,'* 1917, xvii, *p.* 355).—**C. G. Leo-Wolf** gives the clinical histories of two cases—a male infant aged 6 months, and a female infant just over 2 years of age. The first was due to an acute attack of encephalitis, while the second resulted from traumatic encephalitis. Both cases recovered, and in both lumbar puncture as a therapeutic measure was successfully carried out. J. Allan.

Weber's syndrome (*'Journ. Amer. Med. Assoc.,'* 1917, lxix, *p.* 2169). —**G. B. Hassin.**—Weber's syndrome means, clinically, a complete or partial paralysis of the oculomotor nerve combined with a contra-lateral hemiplegia. Pathologically it signifies some lesion of one of the cerebral peduncles (the crus cerebri). To the modified type of Weber's syndrome belongs the so-called Benedikt syndrome, in which the paralysed side shows a tremor resembling that of paralysis agitans, chorea or athetosis, and in which the lesion was found to be not so extensive in the peduncles as in the so-called tegmentum. A case is reported of a girl, aged 9 years, who nine weeks previously had suddenly been seized with vomiting, dizziness and headache. Two weeks later ptosis of the left upper eyelid occurred, which was followed by hemiplegia on the right side. The left pupil was dilated and only the external movements of the eye remained. The reflexes on the right side were exaggerated, and Babinski's sign was positive. There was also a bilateral papillœdema. The patient died, and at the necropsy a glioma was found, which had completely destroyed on the left side the gyrus hippocampus, the cornu ammonis, the cerebral peduncle and the left oculomotor nerve. T. R. Whipham.

Cerebral galvanism in backward children (*'Lancet,'* 1918, i, *p.* 903). —**F. Hernaman Johnson** speaks favourably of cerebral galvanism in the treatment of children mentally backward as a result of prolonged illness. A boy, aged 7 years, came under observation because he was backward at school, suffered from headaches, and had "fits." This condition was said to be of eighteen months' duration, and to date from a severe and prolonged attack of whooping-cough. Cerebral galvanism was tried, with good results. He ceased to complain of his head, his appetite improved, and he became more intelligent. Three months later it was reported that there had been no more "fits" and that he was doing well at school. In another case a girl, aged 12 years, had at the age of six become infected with tapeworm, segments of which were passed at intervals for two years, but none had been since she was nine. During the infective period she had developed numerous symptoms of reflex nervous irritation which culminated in epi-

leptic seizures. She was the victim of obstinate constipation, of daily headaches, and her intelligence seemed that of a child of six, with the further handicap that all the lessons learned in the first year of school had been forgotten, and that she was unable to re-learn owing to the fact that any mental effort brought on severe headache. She was of normal height but nearly a stone below weight. Her tongue was furred and her breath unpleasant, although her teeth were sound and well kept. Cerebral galvanism was given. Within a week she had lost her headache and the bowels began to act regularly every day. Within six weeks—after the administration of some thirty treatments—the child was mentally and physically transformed. She astonished her mother by repeating verses which she had learned at school between five and six years previously, and asked again for her reading-books. The technique of the treatment is simple and free from danger if conducted by skilled persons. It should not be carried out unless it can be directly supervised, and not merely prescribed by a medical man. The continuous current from the main taken through a resistance should never be used for this purpose. A cell battery with a finely graduated resistance or a soundly constructed and truly earth-free "pantostat" or "multostat" must be employed. One pad about 3 in. by 2 in. is bound to the forehead exactly in the centre. The other, a little larger, is placed on the back of the neck. The forehead pad is made positive, and a current of 1–3 ma. passed for twenty minutes. The greatest care must be taken to see that the current passes in a strictly antero-posterior direction, and that it is evenly distributed throughout each hemisphere. On no account must a galvanic current be passed in a lateral direction through the brain for purposes of treatment. J. Allan.

A case of progressive lenticular degeneration (*'Med. Journ. Austral.,'* 1917, II, *p.* 310).—**H. Swift.**—A child aged $7\frac{3}{4}$ years showed the following symptoms: trembling of the hands, staggering gait, mental weakness, spastic muscles of the hands, no Babinski or Romberg, exaggerated reflexes and incontinence of urine. F. R. B. Atkinson.

A few types of infantile convulsions (*'Med. Press,'* 1917, I, *p.* 489).—**L. Exchaquet** discusses some of the causes of convulsions in childhood. All the acute diseases of childhood may determine convulsions in previously healthy children. They are due to the action of an acute toxic action on the central nervous system similar to that of strychnine, curare, or the toxin of tetanus. They are especially apt to be met with in pneumonia, measles, scarlet fever and diphtheria. In eruptive diseases the convulsions often precede the appearance of the exanthem. A cause of fits in infants and children is epilepsy—that is to say, a child who is subject to fits not presenting features that allow of an exact diagnosis often becomes epileptic. A much more frequent cause of fits in childhood is spasmophilia—a term indicative of an irritable state of the nerves, which is specially apt to be manifested in early infancy. The physical signs of spasmophilia are—(1) Trousseau's sign: Compression of the arm causes contraction of the fingers and hand, which assume the position of so-called "accoucheur's hand." (2) Chovstek's sign: Light percussion on the facial nerve at its point of emergence causes contraction of the muscles of the eyes and mouth. (3) Erb's sign: On electrical examination we get contractions on opening the cathode with less than 5 milliampères. The clinical types of spasmophilia are—(*a*) spasm of the larynx characterised by attacks of dyspnœa; (*b*) eclampsia, manifested by

clonic convulsions; and (*c*) tetany, the rarest manifestation. Among the causes of convulsions in infancy must be enumerated all the cerebral lesions belonging to the category of infantile encephalopathy. Encephalopathy may be dependent on various causes—infective, such as polio-encephalitis, or traumatic, consequent upon dystocia or intra-uterine traumatisms. The anatomical lesions are softening or cysts due to hæmorrhage, porencephaly, due to cicatricial contraction, etc. Whatever be the anatomo-pathological form of the encephalopathy, it may give rise to very different clinical varieties, such as hemiathetosis, spasmodic chorea, spasmodic hemiplegia, etc. Brief clinical histories of several cases to illustrate the various types mentioned are given. J. Allan.

Contribution to the study of chorea (*'Thèses de Paris,'* 1916-1917, No. 95).—**M. Deffaux** adduces the following arguments in favour of the organic natures of chorea. (1) *Ætiological:* In the immense majority of cases chorea follows an infection. (2) *Clinical:* These may be classified in three groups. (*a*) Certain symptoms are definitely of an infective character, viz. acute endopericarditis, delirium, fever, erythema, cutaneous infections, suppuration, gangrene, dyspnœa, enlargement of the liver and spleen, and typhoid state. (*b*) Others are characteristic of an organic nervous lesion, involving either the central cortex or the cerebellum. (*c*) Meningeal reactions of two kinds are not infrequent in chorea, one of a clinical character and the other of a cytological. Cerebro-spinal lymphocytosis is almost constant, and is, perhaps, the best sign we possess of the organic nature of chorea. (3) *Anatomical:* (*a*) In the immense majority of cases of chorea undoubted anatomical lesions of the nervous system are found, situated by preference in the optostriate nuclei or the cortex. (*b*) A certain number of nervous diseases which present among other symptoms irregular and involuntary movements, like those of true chorea, are due to undoubted lesions of the nervous system, viz. chronic chorea, infantile encephalopathies, cerebral tumours, cerebellar lesions, cerebro-spinal meningitis, meningeal hæmorrhage, general paralysis and sleeping-sickness.

J. D. Rolleston.

Treatment of chorea by modified Marinesco method (*'La Pediatria,'* 1918, xxvi, *p.* 575).—**R. Pastore** treated cases by five or seven intraspinal injections of 25 per cent. solution of sulphate of magnesium in progressive doses from 0·10 to 0·50 gm. every 24 hours, or 48 hours, according to the severity of the case, the final injections being at intervals of three to four days. The use of these small doses was perfectly innocuous and caused none of the accidents which were observed in Marinesco's original method. Only in one case was there slight prostration with vomiting. In general the movements became less and the muscles stronger. Slight relapses sometimes occurred during the treatment, but never after cure had taken place.

Vincent Dickinson.

Recurrent paroxysmal hysterical tremor (*'El Siglo Medico,'* 1916, lxiii, *p.* 818).—**E. F. Sanz** describes this condition in a girl, aged 12 years. One afternoon after receiving a letter from her father she was seized by violent convulsive tremor of the whole body, accompanied by a feeling of anxious dread. The attack lasted one hour. The attacks recurred for eight days in succession, always at the same hour, when she was brought for examination. This revealed no other stigmata, physical or psychical. The subsequent history of the case is unknown. M. D. Eder.

Head-shaking with nystagmus (*'Amer. Journ. Dis. Child.,'* 1918, xvi, *p.* 180).—**C. Herrman** during the last nineteen years has observed 64 cases at various children's clinics in New York. Females are slightly more frequently affected, 29 being males and 35 females. Nearly 70 per cent. of all cases occur in December, January and February; 75 per cent. of all cases occur between 4 and 12 months of age. After the eighteenth month a first attack is rare, but there may be recurrences at that time. Herrman's oldest patient was 4 years old. In very few of his cases was there a distinct family history. The muscles chiefly affected are the sterno-cleido-mastoid, the trapezius, and the rectus capitis. The movements are regular and rhythmical and from 60–100 a minute. Usually they are not continuous, but come on at longer or shorter intervals. The direction is rarely purely horizontal, vertical or rotary, but when primarily horizontal, slightly upward to one side and downward to the other, the excursions being often greater to one side. If primarily vertical, it is rarely a pure nod forwards and backwards. The movement may be a combination of the horizontal and vertical, and they may be in different directions at different times. In Herrman's series the movements were primarily horizontal in 44, vertical in 12, rotary in 4, and horizontal and vertical at different times in 4. The movements are often more distinct when the child is angry or fatigued or during an attack of some intercurrent disease. They usually cease when the child is lying down and in sleep. The nystagmus may appear before, simultaneously with or after the head-movements. It may persist after the head-shaking has ceased. The direction of the nystagmus is often not purely horizontal, vertical or rotary; it may be different in the two eyes or when the patient looks in different directions. The condition seldom lasts less than two or more than twelve months. It must be distinguished from *eclampsia nutans*, which is an epileptic equivalent occurring in attacks and associated with complete or partial unconsciousness; from *tic* or *habit-spasm*, which does not occur at such an early age and is not associated with nystagmus; from *jactatio capitis nocturna*, which occurs only in sleep or in a subconscious state; and from *congenital head-shaking with nystagmus*, which is due to pathological changes in certain areas of the brain and persists throughout life. J. D. Rolleston.

The neuropathic or nervous child (*'New York Journ. State Med.,'* 1917, xvii, *p.* 13).—**E. B. Angell** points out that within recent years much has been written about the pathological, the defective, the backward or the feeble-minded school child. Little is to be found in the literature about the ordinarily nervous child. This is perhaps because he is not often brought to our attention, or if so, we dismiss him and his mother or teacher with the chilling remark that it is a mere matter of nervousness and he must get over it or be disciplined. The nervous child should receive better treatment, and the author describes various types of nervous children and discusses their treatment and management. It is very important to study the individual child, not his symptoms alone. Discover by his nerve signs whether he is drooping with a tired brain or tense with over-active but ill-balanced nerve energy. Correct manifest defects of a physical character, see that he is free from the burden of a faulty dietary, secure an abundance of fresh air. Above all, insist upon a proper muscular development and ready responsive mental reaction through muscle drill, military in character, and most nervous children, and many defective ones, would develop into normal, healthy, and efficient individuals. J. Allan.

Migraine in childhood (*'Amer. Journ. Dis. Child.,'* 1918, xvi, *p.* 312.—**W. Tileston.**—In infancy the symptoms are obscure and the attacks are of shorter duration than in the adult, lasting only a few hours. There are periodic attacks of vomiting, associated with pain and restlessness, and sometimes convulsions. The temperature is often somewhat raised. In early childhood the attacks are more like those in the adult, though the pain is less often localised on one side of the head, and sensory and ophthalmic symptoms are less common. Association with cyclic vomiting is not uncommon. Increased intestinal putrefaction is a rather frequent accompaniment of migraine. The diagnosis rests chiefly on the periodic occurrence of headache, accompanied usually by nausea and vomiting. The intervals between the attacks vary from one to two weeks up to several months. The headache is not necessarily confined to one side; when it is not, it is usually frontal, rarely occipital. A family history of migraine is of much diagnostic value. From cyclic vomiting migraine is differentiated by the following features: In migraine the headache precedes the vomiting and is the predominating symptom, while in cyclic vomiting the headache is usually not severe and the vomiting is frequent and intractable. The presence of large amounts of acetone in the urine is constant in cyclic vomiting, and also in migraine provided vomiting is present, but in the former it may precede the attack, and in that case has diagnostic value. Treatment should be preceded by thorough examination of the patient, with special attention to the eyes, nose and throat. The diet is of considerable importance. Some cases have fewer attacks if meat and fish are excluded. Constipation should be corrected as tending to increase intestinal putrefaction. The use of drugs should be limited. Caffeine seems to have the best effect. Tileston records a case in a boy, aged 6 years, in whom the beneficial effect of even a temporary diminution of the protein intake was shown by almost complete disappearance of the headache and in the increased tolerance of eggs. J. D. Rolleston.

Family spasmophilic syndrome (*'Riv. di Clin. Pediat.,'* 1918, xvi, *p.* 170).—**M. Pincherle** and **A. Pollidori** give details of twenty-five cases which had the family characteristic out of ninety-one cases examined at the clinic. This characteristic is shown by the phenomenon of tetany occurring in two or more members of the family, together with spasm of the glottis and simple convulsions. Close investigation frequently reveals latent spasmophilic symptoms, with concomitant rickets, lymphatism, adenoids or true *status lymphaticus*. Vincent Dickinson.

Juvenile paresis (*'Arch. of Ped.,'* 1918, xxxv, *p.* 156).—**R. L. Ash** reports three cases in two boys and one girl, aged 9, 12 and 20 years, in whom the disease appeared at the ages of 6, 10 and 14 respectively. Congenital syphilis was probable in all three; one had Hutchinson teeth and specific leg ulcers; the second had a half-brother who at 30 years of age had advanced progressive paralysis; and the mother of the third had a positive Wassermann reaction. In all three patients loss of mentality accompanied by speech disturbances was noticeable at an early stage of the disease. Fixed and unequal pupils and hyperactive tendon reflexes were common to all. One had epileptiform convulsions, headaches and other equivalents; another had had paralytic seizures. The Wassermann reaction in the spinal fluid and blood was positive in the three cases. J. D. Rolleston.

The ætiology of Mongolian imbecility (*'Arch. of Ped.,'* 1917, xxxiv, *p.* 494).—**C. Herrman** discusses the factors regarded by various writers as important in the causation of Mongolian imbecility, and considers that there is no positive evidence that worry, emotional shock, illness during pregnancy or congenital syphilis are important or essential factors. The evidence that Mongolian imbecility is a unit character and recessive, though not conclusive, is certainly suggestive. J. D. Rolleston.

The nitrogenous metabolism and influence of thyroidin in mongoloid and myxœdematous idiocy (*'La Pediatria,'* 1918, xxvi, *p.* 336).—**G. Caronia** gives cases and tabulated results of his observations on this subject. (1) The nitrogenous metabolism of a child affected with mongoloid microcephalic idiocy under normal conditions was normal in respect to the retention of nitrogen as a whole, variable in relation to the various nitrogen elements eliminated by the urine. There was, in fact, a marked retention of nitrogen, but an increased elimination of amino-acids, indicating diminished oxidative processes. Under the influence of thyroid extract there was a marked increase in metabolism, with evident destruction of tissue, which underwent disintegration, as shown by increased elimination of purin bodies and creatinin. The behaviour of nitrogen metabolism in such conditions shows a striking analogy with what is observed in Graves's disease. (2) In children suffering from myxœdematous idiocy, the nitrogenous metabolism seemed equally variable as regards the nitrogenous elements in the urine, with increase in elimination of amino-acids. Under thyroid extract, besides a short acceleration there was a more regular nitrogenous metabolism, as shown by the more complete elaboration of nitrogenous substances, with diminished elimination of amino-acids and a normal amount of nitrogenous residue and uric acid. Here the condition was not in accordance with that of hyperthyroidisin, but with that of normal metabolism. (3) The different behaviour of nitrogenous metabolism under the influence of thyroid extract in the two forms of idiocy, whilst it excludes any pathological relationship between them, demonstrates with ever-increasing emphasis the enormous influence disordered thyroid function has upon myxœdematous idiocy, and justifies the therapeutic administration of thyroid extract in this disease. Vincent Dickinson.

Diseases of Ductless Glands.

Endocrinopathic inheritance (*'Journ. Amer. Med. Assoc.,'* 1916, lxvi, *p.* 1438).—**W. Timme** reports a family, three generations of which showed a tendency to endocrinopathic defects. He attempts to explain this according to the Mendelian laws of heredity, and points out the importance of investigating such heritance so as to be able to advise prospective parents of such a probability. It would seem that abnormal growth is dominant in the male and recessive in the female, while abnormal metabolism may be dominant in the female and recessive in the male. T. R. Whipham.

Infantilism from ankylostomiasis (*'Ann. Paul. de med. e chir.,'* 1916, vii, *p.* 133).—**A. D. de Andrade** records six cases of infantilism in children, aged from 8 to 16 years, in which the condition was due to a pluriglandular syndrome caused by ankylostomiasis. J. D. Rolleston.

Enlarged thymus (*'Dub. Journ. Med. Sci.,'* 1915, II, *p.* 130).—**A. R. Parsons** has met with, in Sir Patrick Dun's Hospital, five cases in young children, aged from 2 to 5 years, in which death occurred suddenly, and on examining them he was struck by the size of the solitary follicles of the intestine and of the mesenteric glands. A boy, aged 9 years, was admitted to hospital at 2 o'clock on Christmas Day. The history was that the child was well until 5 p.m. on the previous day, when he became delirious. It was found impossible to make a satisfactory examination on admission on account of the restlessness of the child. He was extremely emaciated, and the pulse was uncountable. The first impression was that it was meningitis. It was impossible to obtain a specimen of urine. The child died at 7 o'clock, or five hours after admission. At the autopsy some of the urine was obtained, and, except for a slight trace of albumin, was normal. Enlargement of the thymus gland was the only thing found. In this case there was no enlargement of the mesenteric glands or of the solitary follicles in the intestine.

J. Allan.

The clinical signs and treatment of hypertrophy of the thymus gland (*'Edin. Med. Journ.,'* 1917, II, *p.* 20).—**C. G. Cumston** points out that the clinical signs met with in hypertrophy of the thymus are of two orders: (1) The functional symptoms, characterised by respiratory disturbances which attract attention; and (2) physical signs, which must, on the contrary, be systematically and carefully searched for. These signs vary in importance, but the author thinks that one should not be content with the discovery of only one, perhaps two, of them, and it is essential to detect the larger number of them and then study the relative value of each, whether they result from inspection, palpation, percussion, auscultation or a radiographic examination. The symptoms and physical signs are detailed, and their significance, individually and collectively, is discussed. The treatment of hypertrophy of the thymus will be indicated by a more or less certain diagnosis, or be required from serious symptoms observed without any previous clinical study. In the latter case intubation or tracheotomy will be done on account of the urgent indications. Intubation with a long tube has given some results, although this question is still doubtful, but what is certain is the absolute uselessness of intubation in thymic asphyxia. The only rational treatment of the urgent accidents due to hypertrophy of the thymus, the diagnosis of which has been made, is surgical interference. Three distinct surgical methods have been essayed, viz. exothymopexy, resection of the sternal manubrium, and last, but not least, thymectomy. Radiotherapy may be resorted to with the aim of causing an acceleration of the thymic involution, but sufficient experience along these lines has not yet been acquired to enable one to speak positively as to its utility.

J. Allan.

Enlargement of the thymus treated by the Röntgen ray (*'Amer. Journ. Dis. Child,'* 1917, XIV, *p.* 40).—**A. Friedlander** emphasises the following facts with reference to enlargement of the thymus: (1) It is much commoner than is ordinarily supposed; (2) the diagnosis can be made definitely by simple physical examination and the Röntgen ray; (3) the Röntgen ray will effect a cure in the vast majority of cases. Very little is known about the ætiology of enlarged thymus. Several of Friedlander's cases have occurred in babies suffering from congenital syphilis, but no conclusions can be drawn from this observation at present. He has also

noted a distinct familial tendency, having seen four families in which more than one child was affected. An apparent relationship of hypertrophic stenosis of the pylorus and enlarged thymus was also observed. There are three definite symptoms of enlarged thymus which are present singly or together, viz. dyspnœa, continuous or intermittent, suffocative attacks with cyanosis, and stridor. The most important physical signs are a bulging mass in the jugulum (more often absent than present), and enlargement of the area of normal thymus dulness on percussion. In young children there is a definite form of thymus dulness in the shape of an irregular triangle or truncated cone whose base is the sterno-clavicular junction and whose apex is the second rib. Laterally the dulness extends very little beyond the sternum. The normal skiagram is a median one, which rests on and is continuous with the heart shadow. Marked enlargement of this shadow, especially marked lateral enlargement, is characteristic of hypertrophied thymus. The treatment of enlarged thymus by X rays is at once safe and efficacious. The series at Cincinnati now exceeds 100 cases with 4 deaths, whereas out of 50 cases treated by thymectomy 17 died—a mortality of 33⅓ per cent. J. D. Rolleston.

Report of nineteen cases of hyperplasia of the thymus gland treated by X-rays (*'Arch. of Ped.,'* 1918, xxxv, *p.* 70).—**J. E. Benjamin** and **S. Lange** in 225 cases examined at the Children's Department of Cincinnati University found undisputed evidence of enlarged thymus in 19, or 8·47 per cent. The diagnosis of enlarged thymus is usually simple. The chief complaint is nearly always cough or attacks of choking, which come and go, frequently appearing in paroxysms. The lymphatic glands other than the posterior cervical glands showed no hypertrophy as a rule. The spleen was found enlarged in only two cases. The lungs were usually peculiarly free of *râles*. The percussion outlines of the thymus which are obtained by light percussion correspond very closely with the skiagrams. Rapid improvement took place under X-ray treatment. Marked progress was generally noted after the first treatment. Shortly after the second treatment the cough ceased as a rule. Three treatments was the usual number given. J. D. Rolleston.

Status lymphaticus; death following tonsillectomy; autopsy (*'Med. Record,'* 1918, xcii, *p.* 19).—**W. W. Carter.**—A girl, aged 5 years, of a nervous and excitable temperament, was operated on for enlarged tonsils and adenoids. Ether was given by an expert anæsthetist. The tonsils were enucleated by the Sluder method and the adenoids were removed by Gottstein's curette. The operation did not last more than two minutes. There was only moderate bleeding. Three hours after the operation and after the child had recovered from the anæsthetic she suddenly became cyanosed and died. An autopsy performed three hours after death showed a large thymus gland reaching over the heart and vessels and weighing 21½ grammes. Spleen normal in size. Mesenteric glands and solitary lymph-follicles of intestine enlarged. Retroperitoneal glands enormously enlarged. The case was regarded as an example of cardiac death, as there was no compression of the trachea. J. D. Rolleston.

The frequency of thyroid insufficiency in general practice (*'Dub. Journ. Med. Sci.,'* 1917, ii, *p.* 297).—**R. Johnson** reports three cases in children, aged respectively 2 years, 7½ years and 9 years. In treating a case it is well to get the eyes tested, as the headaches complained of are

often lessened by the use of correct glasses. It is noteworthy that glasses worn before the taking of thyroid gland often have to be altered after a month or more of regular doses. Experience is the only teacher in the administration of the correct dose of thyroid. Small does at first, and then an increase; if the increase is not enjoyed return to the smaller dose. The weight should be recorded weekly. The author's routine is to give $\frac{1}{10}$ gr. thrice daily, with liquid paraffin or some other suitable laxative night and morning. A good working knowledge of the symptoms of slight thyroid insufficiency is essential, and it is certain that no drug gives more pleasure to both the patient and his medical adviser than thyroid gland given in the right dose to the right person. J. Allan.

A clinical study of fifty-five cases of hypothyroidism in children (*'Arch. of Ped.,'* 1918, xxxv, *p.* 577).—**M. B. Gordon.**—Twenty-one were cases of undoubted sporadic cretinism, and 34 of minor degrees of hypothyroidism. The ages varied from one to twelve years. Twenty-five were males and 30 females. Familial tendency towards hypothyroidism was slight, being met with in only 10 per cent. Precedence in birth and the nature of the delivery were apparently of no ætiological significance. Only 14 were first-born and the only child. The majority of the children were preceded and followed in birth by a normal child. A history of normal deliveries was obtained in 46 cases. Breast-feeding did not have any tendency to prevent the condition, as the majority of the children were breast-fed for the greater part of the first ten months. The importance of syphilis as an exciting cause was probably small, as out of 20 in whom the Wassermann and luetin reactions were performed only 2 gave positive results. Delayed development was most marked in the powers of talking, walking and teething in the order named. Treatment with thyroid extract was of great benefit, but mental retardation was not so amenable to treatment as physical deficiency. The prognosis depended on the age at which the treatment was instituted and upon the regularity and length of the treatment. The secret of success is early and long-continued treatment.
J. D. Rolleston.

Three children with sporadic cretinism in one family (*'Arch. of Ped.,'* 1917, xxxiv, *p.* 831).—**C. Herrman.**—The three patients two of whom were females and one a male, were aged 22, 20 and 18 years, and had been under treatment intermittently since they were three years of age. Their mental and physical development was greatly retarded, their mental capacity corresponding to that of children of 9, 13 and 6 years respectively. Herrman had previously recorded another series of three cases of sporadic cretinism in one family. The two older children, now aged 22 and 20 years, have been under treatment for twenty-one and twenty years respectively. The boy, in whom treatment was begun at the age of 15 months, is normal in physical but retarded in mental development; the girl, in whom treatment was begun at 2 months, is practically normal in both physical and mental development. The youngest child died at 3 years of broncho-pneumonia.
J. D. Rolleston.

Addison's disease in a girl, aged 10 years (*'La Pediatria,'* 1916, xxiv, *p.* 274).—**G. Rutelli.**—There was a history of enlarged cervical glands at the age of 10 months, and an affection of one finger which resulted in ankylosis at the age of 2 years. Pigmentation of the skin commenced at the age of 4 years. The blood-pressure was 65–70 mm., and there was

marked asthenia. The urine was normal excepting slight diminution in elimination of uric acid and creatinin. On a diet rich in carbohydrates sugar appeared in the urine 20 hours after an injection of 1 mg. of adrenalin; on ordinary diet, after 18 hours; on a diet poor in carbohydrates, after 4 hours. A control experiment in a healthy subject gave 12, 8 and 2 hours respectively. VINCENT DICKINSON.

Addison's disease in a girl, aged 13 years; death; autopsy (*'Arch. de méd. des enf.,'* 1917, xx, *p.* 28).—**J. Comby.**—The patient had probably been infected by her father, who had died of pulmonary tuberculosis. She presented all the symptoms of Addison's disease, including bronzing of the skin, profound asthenia, arterial hypotension, vomiting, and almost sudden death after about two months' illness. The only lesions found post mortem were in the suprarenals. The right gland was a mere abscess-cavity, and the left was studded with caseous nodules.

J. D. ROLLESTON.

Studies on the pineal gland (*'Arch. int. med.,'* 1916, xvii, *p.* 607).—**G. Horrax** records three cases in children, aged from $7\frac{1}{2}$ to 11 years, characterised by precocious adolescence and overgrowth. In one the necropsy showed the presence of a pineal tumour, and in the other two the symptoms and signs were suggestive of pineal disturbance. J. D. ROLLESTON.

A case bearing on the function of the pituitary body (*'Journ. Amer. Med. Assoc.,'* 1917, lxviii, *p.* 111).—**W. Boyd** reports the case of a boy, aged $10\frac{1}{2}$ years, who began to suffer from slight attacks of frontal headache and occasional vomiting. He complained of hemianopia, but the vision was found to be normal, and no refractive errors or structural changes could be detected. Vision became worse, and seven months later was found to be $\frac{2}{7}\frac{0}{0}$, unimproved with glasses, in the right eye, and only very feeble perception of light in the left. Exophthalmos was present, and the pupils were large and reacted sluggishly. Temporal hemianopia existed in the right eye with reversal of the colour fields. The retinal vessels were dilated and tortuous, and the edges of the discs were a little hazy. A skiagram showed slight enlargement of the sella turcica and thinning of the bony walls. The urine was normal, but sugar tolerance was markedly increased. Extract of the anterior lobe of the hypophysis was injected, but without producing any thermal response. This, together with the absence of skeletal and sexual changes, suggested that the lesion was one involving only the posterior lobe. An operation by the transphenoidal route was undertaken, and a growth was partially removed. Vision was not improved, and the patient died nine months after the onset of symptoms. At the post-mortem examination a glioma was found encircling the infundibular stalk, but not involving the pituitary body itself—a fact which favours the theory that the secretion of the posterior lobe of the pituitary passes by way of the infundibular stalk into the third ventricle. T. R. WHIPHAM.

Early pituitary syndromes (*'Riv. di Clin. Pediat.,'* 1918, xvi, *pp.* 281 and 337).—**M. Pincherle** gives full details of four cases and extensive tabulated results of experimental pituitary lesions, of the action of pituitary extract and clinical symptoms. He says that there exist morbid entities having the clinical course of diabetes insipidus, in which other symptoms indicative of disturbed pituitary function are found associated with polyuria and polydipsia. The most important of these are somatic under-development,

excessive tolerance of carbohydrates, Cushing's thermo-reaction, arterial hypotension, deficient secretion of sweat, asthenia and somnolence. In some of the author's cases the size of the sella turcica was markedly reduced, and there were certain nervous phenomena indicative of participation of other endocrine glands. Moreover he was able in some instances to produce a more or less marked, but always transitory, albuminuria by repeated forced lumbar lordosis. Pituitary organo-therapy, although capable of reducing the polyuria and polydipsia, was powerless to effect a lasting cure. VINCENT DICKINSON.

Dystrophia adipo-genitalis (*'Journ. Amer. Med. Assoc.,'* 1918, LXX, *p.* 669).—**J. J. Madigan** and **T. V. Moore** report a case in a boy, aged 10 years, who presented the following symptoms of Fröhlich's syndrome:—(1) Neighbourhood symptoms: There was deformity of the sella turcica, which was flattened, the posterior clinoid processes being destroyed and the anterior pressed down. The child had been blind from birth; only perception of light remained. The papillæ were much reduced in size and very white. (2) General pressure symptoms, such as headache, vomiting and choked disc were absent. (3) Glandular manifestations: The boy was 137·2 cm. (4 ft. 6 in.) tall, *i. e.* 6 cm. above the average for his age. This indicated pituitary hyperplasia, while his tapering extremities, typical adiposity and maxillary prognathism pointed to hypopituitarism. (4) Symptoms referable to other glands: The penis was rudimentary and the testicles were undescended, while the mons Veneris and breasts were very pronounced. The writers suggest that the condition was due to an inborn co-ordinate germinal disposition, because there was an hereditary taint and the origin of the case was pre-natal. J. D. ROLLESTON.

Precocity (*'Med. Press,'* 1917, I, *p.* 141).—**E. Cautley** draws attention to the various types of precocity, and reviews the chief points in each case. There is a precocity of the mind or intellect, of the physical structure of the body and of sexual development, but there is no recorded case in which the three varieties are combined. Tumours are frequently met with in conjunction with precocious sexual development in girls and boys. It is by no means proved what is the cause of precocity. Mental precocity he is inclined to regard as simply an excessive variation from the mean, and not dependent in any way on the endocrinic glands. In support of this he points out that the variation may take place in other directions, and that other representatives of the same family as the genius may exhibit imbecility, criminality, sexual perversion, or moral insanity. Moreover, it is unusual for a very clever father to have an equally clever son, especially if it is an only son. On the other hand, there is strong evidence indicating that physical and sexual precocity depend on hyper- or hypo-activity of one or more of the ductless glands, more especially the adrenals and the pituitary. They may act by stimulating or inhibiting the activity of the sexual glands and secondary sex organs. Cushing claims that pituitary secretion stimulates the ovary, and that absence of the secretion leads to loss of sexual characters and atrophic changes. Possibly this secretion inhibits the thyroid and adrenals; hence the sexual undevelopment and constitutional debility of glands, and the associating of excessive obesity with infantilism, generally ascribed to hypo-pituitarism. On the other hand, hypo-pituitarism, by withdrawing or diminishing this inhibitory influence, would lead to hyper-activity of the thyroid and adrenals and development of secondary male

characteristics, *i. e.* adrenal virility. Other cases, however, suggest an exactly opposite hypothesis to this. It is therefore obvious that at present we must confess we are only on the threshold of knowledge, and that no hypothesis can as yet be accepted as affording the true explanation.

J. Allan.

Lipodystrophia progressiva (*'Monatsschr. f. Kinderheilk.,'* 1917, xiv, *p.* 230).—**Bossert-Rollett** records a case in a girl, aged 11 years, who had been plump up to the age of four, when she had a severe fright and began to grow thin in the face, arms, chest and abdomen. The lower extremities, on the other hand, remained normal, and there was abundant fat in the buttocks. The subcutaneous fat only was affected, and the bones, muscles and skin were in no way involved, as in facial hemiatrophy. There were no signs of disease in the heart, lungs or abdominal organs. Von Pirquet's reaction was negative. The urine was normal. The intelligence was well developed, and the nervous system was normal. J. D. Rolleston.

Review.

Medical and Surgical Reports of the Episcopal Hospital. Vol. iv. Philadelphia: Press of Wm. J. Dornan, 1916.

The present volume, like its predecessors which have been reviewed in this Journal (*vide* British Journal of Children's Diseases, 1914, xi, p. 144, and 1915, xii, p. 31), contains several articles of pædiatric interest. H. G. Godfrey reports four cases of congenital stenosis of the pulmonary artery to illustrate its favourable prognosis in relation to congenital heart disease generally. Astley P. C. Ashhurst writes on multiple cartilaginous exostoses (hereditary deforming chondrodysplasia), with notes of nine hitherto unpublished cases. The treatment of infantile paralysis during the period of recovery is discussed by A. Bruce Gill, who emphasises the need of careful and prolonged treatment, so that the patient may reach the final stage of permanent paralysis without preventable deformity and with the disability reduced to a minimum. Rutherford L. John records twenty-three cases of caries of the spine treated by the Albee method of bone-transplantation, with improvement in 50 per cent. of the cases. Harold G. Goldberg reports a case of implantation cyst of the eye in a boy, aged 6 years, the result of a punctured wound, both the epithelial and corneal tissue constituents being transferred into the anterior chamber. An example of mirror-writing in a boy, aged 10 years, is described by Samuel Horton Brown, the interesting feature in the case being that the condition was recognised by the teacher, so that the child could be kept fairly abreast with his fellows until the proper development had taken place. In an article on removal of foreign bodies by direct bronchoscopy and œsophagoscopy Curtis C. Eves reports eight instructive cases, six of which occurred in children, with skiagrams of the foreign bodies *in situ*, and photographs of them after their removal. A fatal case of purpura hæmorrhagica mistaken for appendicitis is related by Irvine M. Boykin in a boy, aged 6 years. On laparotomy the appendix was found to be normal, and there was a retro-peritoneal hæmatoma extending from Poupart's ligament to the upper pole of the right kidney. Shortly before death, which occurred the same day, several ecchymoses were found on the lower extremities and on the abdomen in the neighbourhood of the wound. J. D. R.